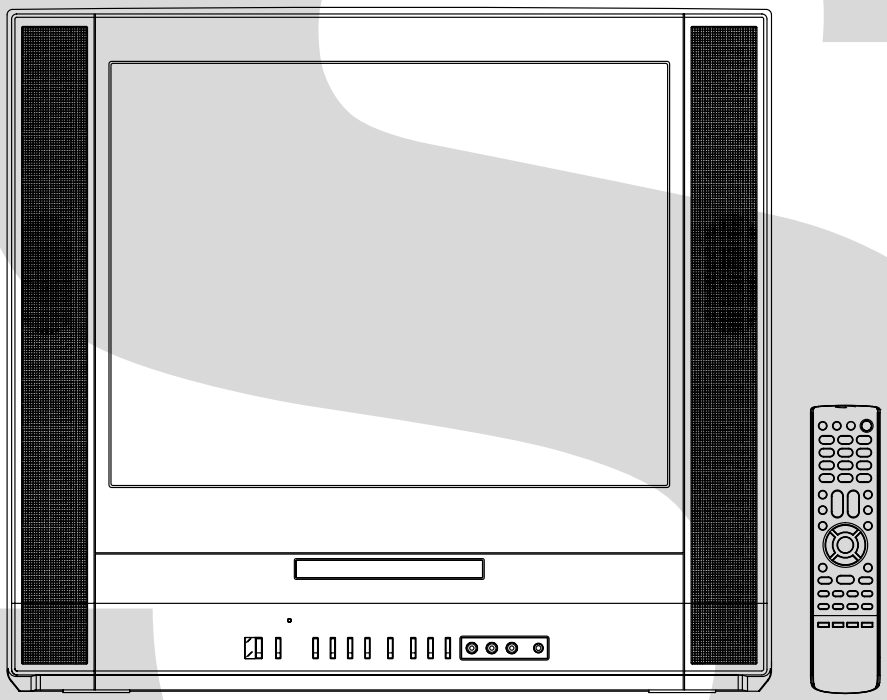
TOSHIBA

FILE NO. 140-200508
(MFR'S VERSION A)

SERVICE MANUAL

COLOR TELEVISION/ DVD VIDEO PLAYER

MD20F51/ MD20F51C



DOCUMENT CREATED IN JAPAN, March, 2005

CAUTION

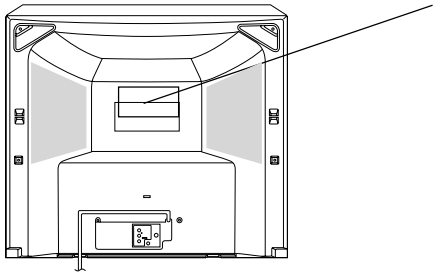
THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.

TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS SERVICE MANUAL CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION-SEE SERVICE PROCEDURE.

USE OF CONTROLS, ADJUSTMENTS OR THE PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

TO PREVENT DIRECT EXPOSURE TO LASER BEAM, DO NOT TRY TO OPEN THE ENCLOSURE. VISIBLE LASER RADIATION MAY BE PRESENT WHEN THE ENCLOSURE IS OPENED. DO NOT STARE INTO BEAM.

Location of the required Marking
The rating sheet and the safety caution are on the rear of the unit.



CERTIFICATION: COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.

PREPARATION OF SERVICING

The laser diode used for a pickup head may be destroyed with external static electricity.
Moreover, even if it is operating normally after repair, when static electricity discharge is received at the time of repair, the life of the product may be shortened.
Please perform the following measure against static electricity, be careful of destruction of a laser diode at the time of repair.

- Place the unit on a workstation equipped to protect against static electricity, such as conductive mat.
- Soldering iron with ground wire or ceramic type is used.
- A worker needs to use a ground conductive wrist strap for body.

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

IMPORTANT SAFEGUARDS

1. **READ INSTRUCTIONS**
   All the safety and operating instructions should be read before the unit is operated.
2. **RETAIN INSTRUCTIONS**
   The safety and operating instructions should be retained for future reference.
3. **HEED WARNINGS**
   All warnings on the unit and in the operating instructions should be adhered to.
4. **FOLLOW INSTRUCTIONS**
   All operating and use instructions should be followed.
5. **CLEANING**
   Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **ATTACHMENTS**
   Do not use attachments not recommended by the unit's manufacturer as they may cause hazards.
7. **WATER AND MOISTURE**
   Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
8. **ACCESSORIES**
   Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer.

PORTABLE CART WARNING
(symbol provided by RETAC)

S3126A

8A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

9. **VENTILATION**
   Slots and openings in the cabinet and in the back or bottom are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. This unit should never be placed near or over a radiator or heat source. This unit should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
10. **POWER SOURCES**
    This unit should be operated only from the type of power source indicated on the rating plate. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For units intended to operate from battery power, or other sources, refer to the operating instructions.
11. **GROUNDING OR POLARIZATION**
    This unit is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. If your unit is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, this plug will only fit into a grounding-type power outlet. This too, is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
12. **POWER-CORD PROTECTION**
    Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **LIGHTNING**
    To protect your unit from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.
14. **POWER LINES**
    An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.
15. **OVERLOADING**
    Do not overload wall outlets and extension cords, as this can result in a risk of fire or electric shock.
16. **OBJECT AND LIQUID ENTRY**
    Do not push objects through any openings in this unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill or spray any type of liquid into the unit.

17. OUTDOOR ANTENNA GROUNDING

If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

18. SERVICING

Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

19. DAMAGE REQUIRING SERVICE

Unplug this unit from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. When the power-supply cord or plug is damaged.
b. If liquid has been spilled, or objects have fallen into the unit.
c. If the unit has been exposed to rain or water.
d. If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
e. If the unit has been dropped or the cabinet has been damaged.
f. When the unit exhibits a distinct change in performance, this indicates a need for service.

20. REPLACEMENT PARTS

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original parts.
Unauthorized substitutions may result in fire, electric shock or other hazards.

21. SAFETY CHECK

Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

22. WALL OR CEILING MOUNTING

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

23. HEAT

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

24. DISC TRAY

Keep your fingers well clear of the disc tray as it is closing. It may cause serious personal injury.

25. CONNECTING

When you connect the product to other equipment, turn off the power and unplug all of the equipment from the wall outlet. Failure to do so may cause an electric shock and serious personal injury. Read the owner's manual of the other equipment carefully and follow the instructions when making any connections.

26. SOUND VOLUME

Reduce the volume to the minimum level before you turn on the product. Otherwise, sudden high volume sound may cause hearing or speaker damage.

27. SOUND DISTORTION

Do not allow the product output distorted sound for a longtime. It may cause speaker overheating and fire.

28. HEADPHONES

When you use the headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.

29. LASER BEAM

Do not look into the opening of the disc tray or ventilation opening of the product to see the source of the laser beam. It may cause sight damage.

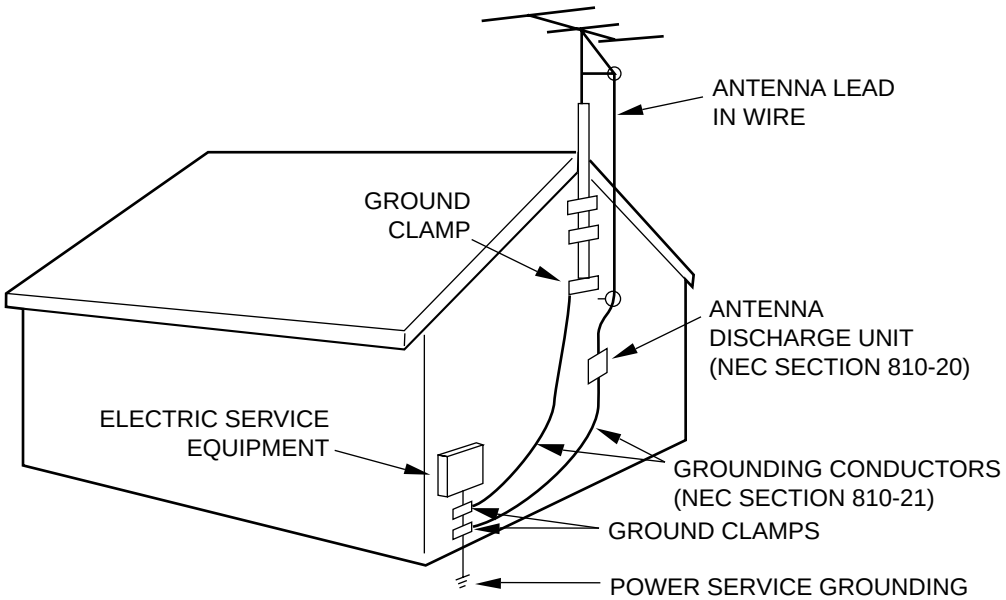
30. DISC

Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.

31. NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV system installer’s attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE



WHEN REPLACING DVD DECK

[When removing the DVD Deck]

Before removing Pick Up PCB and DVD PCB connector, the short circuit the position shown in **Fig. 1** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.

[When installing the DVD Deck]

Remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

NOTE

- Before your operation, please read “PREPARATION OF SERVICING”.
- Use the Lead Free solder.
- Manual soldering conditions
  - Soldering temperature: 350 ± 5˚C
  - Soldering time: Within 2 seconds
  - Soldering combination: Sn-3.0Ag-0.5Cu
- When Soldering/Removing of solder, use the draw in equipment over the Pick Up Unit to keep the Flux smoke away from it.

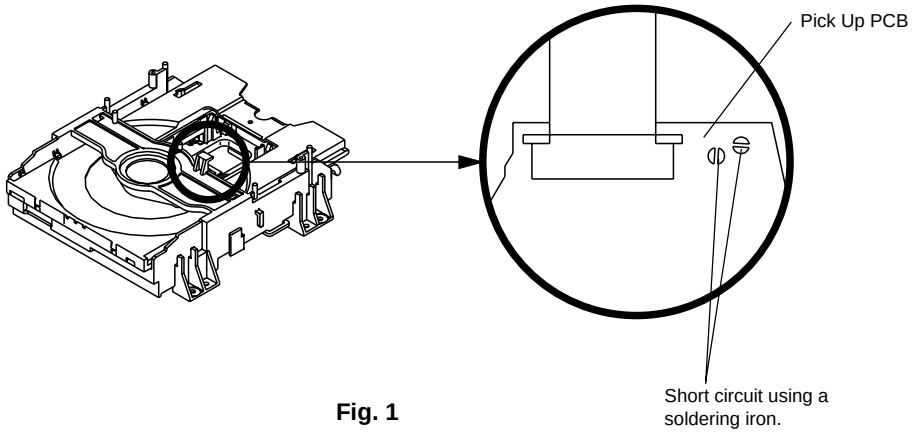


Fig. 1

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Back Cabinet and AV PCB/DVD Block. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Rotate the Main Gear in the direction of the arrow by hand. **(Refer to Fig. 1)**
3. Manually open the Tray.

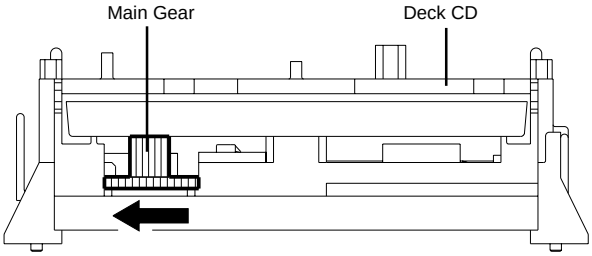


Fig. 1

PARENTAL CONTROL - RATING LEVEL

4 DIGIT PASSWORD CANCELLATION

If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Check that 'No disc' is displayed on the screen.
4. Press and hold the 'STOP' button on the front panel.
5. Simultaneously press and hold the '7' key on the remote control unit.
6. Hold both keys for more than 3 seconds.
7. The On Screen Display message 'PASSWORD CLEAR' will appear.
8. The 4 digit password has now been cleared.

TRAY LOCK

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press and hold the 'STOP' key on the front panel.
4. Simultaneously press and hold the '9' key on the remote control unit.
5. Hold both keys for more than 2 seconds.
6. The On Screen Display message ' ⌂ ' will appear.
7. The Tray Lock has now been set up.

NOTE: No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press and hold the 'STOP' key on the front panel.
4. Simultaneously press and hold the '9' key on the remote control unit.
5. Hold both keys for more than 2 seconds.
6. The On Screen Display message ' ⌂ ' will appear.
7. The Tray Lock has now been cleared.

NOTE: No indications on the screen when the Tray Lock is setting.

It is likely to be going to be changed to the following steps without a previous notice in the future.

If the above is not effective measures, please follow the steps below.

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of 'SETUP', 'SUBTITLE', '3', 'AUDIO' and '0' key of a remote control unit.
4. The On Screen Display message ' ⌂ ' will appear.
5. The Tray Lock has now been set up.

NOTE: No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

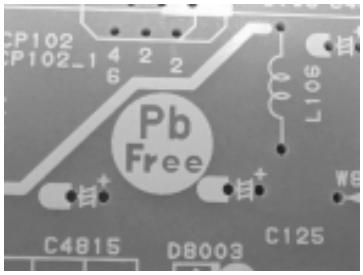
1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press it in order of 'SETUP', 'SUBTITLE', '3', 'AUDIO' and '0' key of a remote control unit.
4. The On Screen Display message ' ⌂ ' will appear.
5. The Tray Lock has now been cleared.

NOTE: No indications on the screen when the Tray Lock is setting.

ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.
(Please refer to figures.)



Caution:

- Pb free solder has a higher melting point than standard solder;
  Typically the melting point is 50°F~70°F(30°C~40°C) higher.
  Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).
  In case of using high temperature soldering iron, please be carefull not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.
  When soldering or unsoldering, completely remove all of the solder from the pins or solder area,
  and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

TABLE OF CONTENTS

CAUTION A1-1
SERVICING NOTICES ON CHECKING A1-2
HOW TO ORDER PARTS A1-2
IMPORTANT SAFEGUARDS ..... A1-3~A1-5
WHEN REPLACING DVD DECK A1-6
DISC REMOVAL METHOD AT NO POWER SUPPLY A1-6
PARENTAL CONTROL-RATING LEVEL A1-7
TRAY LOCK A1-7
ABOUT LEAD FREE SOLDER (PbF) A1-8
TABLE OF CONTENTS A2-1
GENERAL SPECIFICATIONS ..... A3-1~A3-12
DISASSEMBLY INSTRUCTIONS
1. REMOVAL OF MECHANICAL PARTS AND P. C. BOARDS B1-1, B1-2
2. REMOVAL OF DVD DECK PARTS ..... B2-1~B2-4
3. REMOVAL OF ANODE CAP B3-1
4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC B4-1, B4-2

SERVICE MODE LIST C-1
CONFIRMATION OF HOURS USED C-1
WHEN REPLACING EEPROM (MEMORY) IC C-2
ELECTRICAL ADJUSTMENTS ..... D-1~D-6
BLOCK DIAGRAMS
DVD E-1, E-2
TV E-3, E-4
POWER E-5, E-6

PRINTED CIRCUIT BOARDS
DVD F-1, F-2
AV/CRT ..... F-3~F-6
LOADING MOTOR/SW F-7, F-8

SCHEMATIC DIAGRAMS
MPEG/MICON/DSP G-1, G-2
MEMORY G-3, G-4
MOTOR DRIVE G-5, G-6
AUDIO/VIDEO G-7, G-8
REGULATOR1 ..... G-9, G-10
MICON/TUNER G-11, G-12
VIF/SIF/CHROMA G-13, G-14
SOUND AMP G-15, G-16
IN/OUT G-17, G-18
STEREO G-19, G-20
DEFLECTION G-21, G-22
CRT G-23, G-24
POWER G-25, G-26
LOADING MOTOR/SW G-27, G-28

INTERCONNECTION DIAGRAM G-29, G-30
WAVEFORMS ..... H-1~H-3
MECHANICAL EXPLODED VIEWS ..... I1-1~I1-3
DVD DECK EXPLODED VIEW I2-1
MECHANICAL REPLACEMENT PARTS LIST J1-1, J1-2
DVD DECK PLACEMENT PARTS LIST J2-1
ELECTRICAL REPLACEMENT PARTS LIST ..... J3-1~J3-10

GENERAL SPECIFICATIONS

G-1	**TV System**	CRT	CRT Size / Visual Size	20 inch / 508.0 mmV
			CRT Type	Flat
			Magnetic Field BV/BH	+0.45G / 0.18G
		Color System		NTSC
		Speaker		2 Speaker
			Position	Front
			Size	1.8 x 3.9 Inch
			Impedance	8 ohm
		Sound Output	Max	5W + 5W
			10%(Typical)	—
G-2	**DVD System**	Color System		NTSC
		Disc		DVD, CD-DA, CD-R/RW, Video CD
				DVD-R/RW (Video Format Only)
		Disc Diameter		120 mm , 80 mm
		Drive		DM3O
		Search speed	Fwd	4 step
			Actual	2-120 times(DVD, VIDEO CD)
				4-40 times (CD)
			Rev	4 step
			Actual	2-120 times(DVD, VIDEO CD)
				4-40 times (CD)
		Slow speed		Fwd 1/7 - 1/2 times
			Actual	--
				Rev 1/7 - 1/2 times
			Actual	--
G-3	**Tuning System**	Broadcasting System		US System M
		Tuner and Receive CH	System	1Tuner
			Destination	US(w/CABLE)
			CH Coverage	2~69, 4A, A-5~A-1, A~I, J~W, W+1~W+84
		Intermediate Frequency	Picture(FP)	45.75MHz
			Sound(FS)	41.25MHz
			FP-FS	4.50MHz
		Preset CH		No
		Stereo/Dual TV Sound		US-Stereo
		Tuner Sound Muting		Yes
G-4	**Signal**	Video Signal	Input Level	1 V p-p/75 ohm
			Output Level	--
			S/N Ratio (Weighted)	--
			Horizontal Resolution at DVD Mode	--
				--
		RGB Signal	Output Level	--
		Audio Signal	Input Level	-8.0dBm/50k ohm
			Output Level	--
			Digital Output Level	0.5 V p-p/75 ohm
			S/N Ratio at DVD (Weighted)	--
			Harmonic Distortion	--
			Frequency Response : at DVD	--
			at Video CD	--
			at SVCD	--
			at CD	--
G-5	**Power**	Power Source	AC	120V, 60Hz
			DC	--
		Power Consumption	at AC	115W at 120V 60Hz
			at DC	--
			Stand by (at AC)	4W at 120V 60Hz
			Per Year	-- kWh/Year
		Protector	Power Fuse	Yes
			Safety Circuit	Yes
			IC Protector(Micro Fuse)	No
			Dew Sensor	No

GENERAL SPECIFICATIONS

G-6	**Regulation**			Safety	UL
				Radiation	FCC
				X-Radiation	DHHS
				Laser	DHHS
G-7	**Temperature**			Operation	+5oC ~ +40oC
				Storage	-20oC ~ +60oC
G-8	**Operating Humidity**				Less than 80% RH
G-9	**On Screen**	Menu(TV)			Yes
	Display		Menu Type		Icon
			TV Setup		Yes
				Picture	Yes
				Audio	Yes
				Picture Preference	Yes
			Channel Setup		Yes
				TV/CABLE	Yes
				Auto CH Memory	Yes
				Add/ Delete	Yes
			V-chip Setup		Yes
			Language		Yes
		Sleep Timer			Yes
		CH / AV(LINE) / DVD			Yes
		Stereo/Audio Output			Yes
				Bilingual	No
				SAP	Yes
		Control	Volume		Yes
		Level	Brightness / Contrast / Sharpness / Color		Yes
			Tint		Yes
			Bass/Treble/Balance		Yes
		Caption / Text			Yes
		Auto Search/Position			No
		Game			Yes
		Mute			Yes

GENERAL SPECIFICATIONS

G-10	**On Screen Display**	Menu (DVD)			Yes	
			Menu Type		Icon	
			Language		Yes	
				Menu	Yes	
				Subtitle	Yes	
				Audio	Yes	
				OSD Language(Set up Language)	Yes	
			Video		Yes	
				E.B.L. (Enhanced Black Level)	No	
				TV Screen Size(4:3)	Yes	
				OSD Display On/Off	Yes	
				Picture Mode (Video/Film/Auto)	Yes	
				JPEG Interval	Yes	
			Audio		Yes	
				DRC (Dynamic Range Control)	Yes	
				Dialogue (On DRC[TV] / Off DRC[Std])	No	
				Surround	No	
			System		Yes	
				Disc/Card Slot	No	
				Password Lock/ Un Lock	Yes	
				Parental	Yes	
				Select Files	Yes	
				HDMI (480p/1080i/720p)	No	
				Output	No	
			Open		Yes	
			Close		Yes	
			No disc		Yes	
			Reading		Yes	
			Play		Yes	
			Still/Pause		Yes	
			Stop		Yes	
			Prohibit Mark		Yes	
			PBC		Yes	
			Step		Yes	
			Skip(>>|)		Yes	
			Skip(|<<)		Yes	
			Random		Yes (CD, VIDEO CD, MP3, WMA, JPEG)	
			Repeat		Yes	
			Slow+		Yes	
			Slow-		Yes	
			Search+		Yes	
			Search-		Yes	
			Jump		Yes	
			Resume		Yes	
			Title No.		Yes	
			Chapter No.		Yes	
			Track No.		Yes	
			Time		Yes	
			Sub Title No.		Yes	
			Angle No.		Yes	
			Vocal On/Off		No	
			Audio No.		Yes	
			Audio Stereo L/R		Yes (Video CD)	
			Zoom		Yes	
			Marker No.		Yes	
			Program Play Back		Yes (CD, VIDEO CD, MP3, WMA, JPEG)	
			Surround On/Off		No	
			Screen Saver		No	
			MP3, WMA, JPEG	Folder Name	Yes	
				File Name	Yes	
				File No	Yes	
				Time	Yes (MP3, WMA Only)	
				Track No	Yes	
G-11	**OSD Language**	(TV)			English, French, Spanish	
		(DVD)			English, French, Spanish	
G-12	**Clock and Timer**	Sleep Timer	Max Time		120 Min	
			Step		10 Min	
		On/Off Timer	Program(On Timer / Off Timer)		No	
		Wake Up Timer			No	
		Timer Back-up (at Power Off Mode)	more than		-- Min Sec	

GENERAL SPECIFICATIONS

G-13	**Remote Control**	Unit		RC-KG
		Glow in Dark Remocon		Yes
		Remocon Format		TOSHIBA
		Format		TOSHIBA
		Custom Code		40-BF H, 44-BB H, 45-BA H, 45-BC H
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		48 Key
		Keys	Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			Play	Yes
			Stop	Yes
			Search+	Yes
			Search-	Yes
			Closed Caption/Skip+	Yes
			Quick View(CH RTN)/Skip-	Yes
			Slow+	Yes
			Slow-	Yes
			Pause/Still/Step	Yes
			DISPLAY	Yes
			TV/DVD	Yes
			Cancel	Yes
			Audio Select	Yes
			Angle	Yes
			Subtitle	Yes
			Top Menu	Yes
			Menu	Yes
			DVD Menu	Yes
			Return	Yes
			CH Up	Yes
			CH Down	Yes
			Vol Down	Yes
			Vol Up	Yes
			Up/ Set+	Yes
			Down/ Set-	Yes
			Left/Select-	Yes
			Right/Select+	Yes
			Enter	Yes
			Play Mode	Yes
			Input Select/Zoom	Yes
			Repeat A-B	Yes
			Mute	Yes
			Open/Close	Yes
			Sleep	Yes
			Marker	Yes
			Jump	Yes
			Game	Yes

GENERAL SPECIFICATIONS

G-14	**Features (TV)**	CABLE		Yes
		Auto Shut Off		Yes
		Auto Setup		Yes
		Auto CH Memory		Yes
		V-Chip	USA V-chip	Yes
			CANADA V-chip	No
		Auto Search		No
		SAP		Yes
		Game Position		Yes
		FM Transmitter		No
		Energy Star		No
		Closed Caption		Yes
		Comb Filter (2lines)		Yes
		Protect of FBT Leak Circuit		Yes
		Picture Preference		Yes
		Choke Coil		No
		Power On Memory		No
	Features (DVD)	Tray Lock		Yes
		Video CD Playback		Yes
		SVCD Playback		No
			Overlay Graphics And Text	No
			Command List	No
			Entry Point Jump	No
		MP3 Playback		Yes
		WMA Playback		Yes
		JPEG Playback		Yes
		Digital Out	(Dolby Digital)	Yes
			(MPEG)	Yes
			(PCM)	Yes
			(DTS)	Yes
		Down Mix Out	(Dolby Digital)	Yes
			(DTS)	No
		3D Surround		No
		Screen Saver		No
		Audio DAC		192kHz / 24bit
G-15	**Accessories**	Owner's Manual	Language	English
			w/Guarantee Card	Yes
		Remote Control Unit		Yes
		Battery		Yes
			UM size x pcs	UM-4 x 2 pcs
			OEM Brand	No
		Rod Antenna		No
			Poles	No
			Terminal	--
		Loop Antenna		No
			Terminal	--
		U/V Mixer		No
		300 ohm to 75 ohm Antenna Adapter		Yes
		Antenna Change Plug		No
		Guarantee Card		No
		Registration Card		Yes
		Warranty Card		No
		ESP Card		No
		Service Station List		No
		DC Car Cord (Center+)		No
		Columbia Offer Sheet		No
		Sheet Information (Return)		Yes
		Netflix Card		Yes

GENERAL SPECIFICATIONS

G-16	**Interface**	Switch	Front	Power (Tact)	Yes
				Channel Up	Yes
				Channel Down	Yes
				Volume Up	Yes
				Volume Down	Yes
				Play	Yes
				Open/Close	Yes
				Skip+ /Search+	Yes
				Skip- /Search-	Yes
				Still/Pause	No
				Stop	Yes
				Main Power SW	No
			Rear	Main Power SW	No
		Indicator		Power	Yes (Red)
				Stand-by	No
				On Timer	No
		Terminals	Front	Video Input	RCA x 1
				Audio Input	RCA x 2(Stereo)
				Other Terminal	HeadPhone
			Rear	Video Input	RCA x 1
				Audio Input	RCA x 2(Stereo)
				Video Output	No
				Audio Output	No
				Digital Audio Output	Coaxial (DVD Only)
				Diversity	No
				DC Jack 12V(Center +)	No
				VHF/UHF Antenna Input	F Type
G-17	**Set Size**			Approx. W x D x H (mm)	574x481.5x514.5
G-18	**Weight**			Net (Approx.)	25.0kg (55.1lbs)
				Gross (Approx.)	28.5kg (62.8lbs)
G-19	**Carton**		Master Carton		No
				Content	--- Sets
				Material	--- / ---
				Dimensions W x D x H(mm)	---
				Description of Origin	---
			Gift Box	Material	Double/White
				W/Color Photo Label	No
				Dimensions W x D x H(mm)	660 x 575 x 625
				Description of Origin	Yes
			Drop Test	Natural Dropping At	1 Corner / 2 Edges / 4 Surfaces
				Height (cm)	60 (ORION SPEC:31)
			Container Stuffing (40' container)		216 Sets
G-20	**Material**		Cabinet	Front	PS 94V0 DECABROM
				Rear	PS 94V0 DECABROM
				Jack Panel	-
			PCB	Non-Halogen Demand	No
				Eyelet Demand	Yes
G-21	**Environment**		Environmental standard requirement (by buyer)		Green procurement of TOSHIBA
				Pb-free	Phase3(Phase3A)

GENERAL SPECIFICATIONS

G-1	**TV System**	CRT	CRT Size / Visual Size		20 inch / 508.0 mmV
			CRT Type		Flat
			Magnetic Field BV/BH		+0.45G / 0.18G
		Color System			NTSC
		Speaker			2 Speaker
			Position		Front
			Size		1.8 x 3.9 Inch
			Impedance		8 ohm
		Sound Output	Max		5W + 5W
			10%(Typical)		—
G-2	**DVD System**	Color System			NTSC
		Disc			DVD, CD-DA, CD-R/RW, Video CD
					DVD-R/RW (Video Format Only)
		Disc Diameter			120 mm , 80 mm
		Drive			DM3O
		Search speed	Fwd		4 step
				Actual	2-120 times(DVD, VIDEO CD)
					4-40 times (CD)
			Rev		4 step
				Actual	2-120 times(DVD, VIDEO CD)
					4-40 times (CD)
		Slow speed			Fwd 1/7 - 1/2 times
				Actual	--
					Rev 1/7 - 1/2 times
				Actual	--
G-3	**Tuning System**	Broadcasting System			US System M
		Tuner and Receive CH	System		1Tuner
			Destination		US(w/CABLE)
			CH Coverage		2~69, 4A, A-5~A-1, A~I, J~W, W+1~W+84
		Intermediate Frequency	Picture(FP)		45.75MHz
			Sound(FS)		41.25MHz
			FP-FS		4.50MHz
		Preset CH			No
		Stereo/Dual TV Sound			US-Stereo
		Tuner Sound Muting			Yes
G-4	**Signal**	Video Signal	Input Level		1 V p-p/75 ohm
			Output Level		--
			S/N Ratio (Weighted)		--
			Horizontal Resolution at DVD Mode		--
					--
		RGB Signal	Output Level		--
		Audio Signal	Input Level		-8.0dBm/50k ohm
			Output Level		--
			Digital Output Level		0.5 V p-p/75 ohm
			S/N Ratio at DVD (Weighted)		--
			Harmonic Distortion		--
			Frequency Response :	at DVD	--
				at Video CD	--
				at SVCD	--
				at CD	--

GENERAL SPECIFICATIONS

G-5	**Power**	Power Source	AC		120V, 60Hz
			DC		--
		Power Consumption		at AC	115W at 120V 60Hz
				at DC	--
			Stand by (at AC)		4W at 120V 60Hz
			Per Year		-- kWh/Year
		Protector	Power Fuse		Yes
			Safety Circuit		Yes
			IC Protector(Micro Fuse)		No
			Dew Sensor		No
G-6	**Regulation**		Safety		CSA
			Radiation		IC
			X-Radiation		HWC
			Laser		DHHS
G-7	**Temperature**		Operation		+5oC ~ +40oC
			Storage		-20oC ~ +60oC
G-8	**Operating Humidity**				Less than 80% RH
G-9	**On Screen Display**	Menu(TV)			Yes
			Menu Type		Icon
			TV Setup		Yes
				Picture	Yes
				Audio	Yes
				Picture Preference	Yes
			Channel Setup		Yes
				TV/CABLE	Yes
				Auto CH Memory	Yes
				Add/ Delete	Yes
			V-chip Setup		No
			Language		Yes
		Sleep Timer			Yes
		CH / AV(LINE) / DVD			Yes
		Stereo/Audio Output			Yes
				Bilingual	No
				SAP	Yes
		Control Level	Volume		Yes
			Brightness / Contrast / Sharpness / Color		Yes
			Tint		Yes
			Bass/Treble/Balance		Yes
		Caption / Text			Yes
		Auto Search/Position			No
		Game			Yes
		Mute			Yes

GENERAL SPECIFICATIONS

G-10	On Screen Display	Menu (DVD)			Yes	
			Menu Type		Icon	
			Language		Yes	
				Menu	Yes	
				Subtitle	Yes	
				Audio	Yes	
				OSD Language(Set up Language)	Yes	
			Video		Yes	
				E.B.L. (Enhanced Black Level)	No	
				TV Screen Size(4:3)	Yes	
				OSD Display On/Off	Yes	
				Picture Mode (Video/Film/Auto)	Yes	
				JPEG Interval	Yes	
			Audio		Yes	
				DRC (Dynamic Range Control)	Yes	
				Dialogue (On DRC[TV] / Off DRC[Std])	No	
				Surround	No	
			System		Yes	
				Disc/Card Slot	No	
				Password Lock/ Un Lock	Yes	
				Parental	Yes	
				Select Files	Yes	
				HDMI (480p/1080i/720p)	No	
				Output	No	
			Open		Yes	
			Close		Yes	
			No disc		Yes	
			Reading		Yes	
			Play		Yes	
			Still/Pause		Yes	
			Stop		Yes	
			Prohibit Mark		Yes	
			PBC		Yes	
			Step		Yes	
			Skip(>>|)		Yes	
			Skip(|<<)		Yes	
			Random		Yes (CD, VIDEO CD, MP3, WMA, JPEG)	
			Repeat		Yes	
			Slow+		Yes	
			Slow-		Yes	
			Search+		Yes	
			Search-		Yes	
			Jump		Yes	
			Resume		Yes	
			Title No.		Yes	
			Chapter No.		Yes	
			Track No.		Yes	
			Time		Yes	
			Sub Title No.		Yes	
			Angle No.		Yes	
			Vocal On/Off		No	
			Audio No.		Yes	
			Audio Stereo L/R		Yes (Video CD)	
			Zoom		Yes	
			Marker No.		Yes	
			Program Play Back		Yes (CD, VIDEO CD, MP3, WMA, JPEG)	
			Surround On/Off		No	
			Screen Saver		No	
			MP3, WMA, JPEG	Folder Name	Yes	
				File Name	Yes	
				File No	Yes	
				Time	Yes (MP3, WMA Only)	
				Track No	Yes	
G-11	OSD Language	(TV)			English, French, Spanish	
		(DVD)			English, French, Spanish	
G-12	Clock and Timer	Sleep Timer	Max Time		120 Min	
			Step		10 Min	
		On/Off Timer	Program(On Timer / Off Timer)		No	
		Wake Up Timer			No	
		Timer Back-up (at Power Off Mode)	more than		-- Min Sec	

GENERAL SPECIFICATIONS

G-13	**Remote Control**	Unit		RC-KG
		Glow in Dark Remocon		Yes
		Remocon Format		TOSHIBA
		Format		TOSHIBA
		Custom Code		40-BF H, 44-BB H, 45-BA H, 45-BC H
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		48 Key
		Keys	Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			Play	Yes
			Stop	Yes
			Search+	Yes
			Search-	Yes
			Closed Caption/Skip+	Yes
			Quick View(CH RTN)/Skip-	Yes
			Slow+	Yes
			Slow-	Yes
			Pause/Still/Step	Yes
			DISPLAY	Yes
			TV/DVD	Yes
			Cancel	Yes
			Audio Select	Yes
			Angle	Yes
			Subtitle	Yes
			Top Menu	Yes
			Menu	Yes
			DVD Menu	Yes
			Return	Yes
			CH Up	Yes
			CH Down	Yes
			Vol Down	Yes
			Vol Up	Yes
			Up/ Set+	Yes
			Down/ Set-	Yes
			Left/Select-	Yes
			Right/Select+	Yes
			Enter	Yes
			Play Mode	Yes
			Input Select/Zoom	Yes
			Repeat A-B	Yes
			Mute	Yes
			Open/Close	Yes
			Sleep	Yes
			Marker	Yes
			Jump	Yes
			Game	Yes

GENERAL SPECIFICATIONS

G-14	**Features (TV)**	CABLE		Yes
		Auto Shut Off		Yes
		Auto Setup		Yes
		Auto CH Memory		Yes
		V-Chip	USA V-chip	No
			CANADA V-chip	No
		Auto Search		No
		SAP		Yes
		Game Position		Yes
		FM Transmitter		No
		Energy Star		No
		Closed Caption		Yes
		Comb Filter (2lines)		Yes
		Protect of FBT Leak Circuit		Yes
		Picture Preference		Yes
		Choke Coil		No
		Power On Memory		No
	Features (DVD)	Tray Lock		Yes
		Video CD Playback		Yes
		SVCD Playback		No
			Overlay Graphics And Text	No
			Command List	No
			Entry Point Jump	No
		MP3 Playback		Yes
		WMA Playback		Yes
		JPEG Playback		Yes
		Digital Out	(Dolby Digital)	Yes
			(MPEG)	Yes
			(PCM)	Yes
			(DTS)	Yes
		Down Mix Out	(Dolby Digital)	Yes
			(DTS)	No
		3D Surround		No
		Screen Saver		No
		Audio DAC		192kHz / 24bit
G-15	**Accessories**	Owner's Manual	Language	English/French
			w/Guarantee Card	Yes
		Remote Control Unit		Yes
		Battery		Yes
			UM size x pcs	UM-4 x 2 pcs
			OEM Brand	No
		Rod Antenna		No
			Poles	No
			Terminal	--
		Loop Antenna		No
			Terminal	--
		U/V Mixer		No
		300 ohm to 75 ohm Antenna Adapter		Yes
		Antenna Change Plug		No
		Guarantee Card		No
		Registration Card		No
		Warranty Card		No
		ESP Card		No
		Service Station List		No
		DC Car Cord (Center+)		No
		Columbia Offer Sheet		No
		Sheet Information (Return)		Yes
		Netflix Card		No

GENERAL SPECIFICATIONS

G-16	**Interface**	Switch	Front	Power (Tact)	Yes
				Channel Up	Yes
				Channel Down	Yes
				Volume Up	Yes
				Volume Down	Yes
				Play	Yes
				Open/Close	Yes
				Skip+ /Search+	Yes
				Skip- /Search-	Yes
				Still/Pause	No
				Stop	Yes
				Main Power SW	No
			Rear	Main Power SW	No
		Indicator		Power	Yes (Red)
				Stand-by	No
				On Timer	No
		Terminals	Front	Video Input	RCA x 1
				Audio Input	RCA x 2(Stereo)
				Other Terminal	HeadPhone
			Rear	Video Input	RCA x 1
				Audio Input	RCA x 2(Stereo)
				Video Output	No
				Audio Output	No
				Digital Audio Output	Coaxial (DVD Only)
				Diversity	No
				DC Jack 12V(Center +)	No
				VHF/UHF Antenna Input	F Type
G-17	**Set Size**			Approx. W x D x H (mm)	574x481.5x514.5
G-18	**Weight**			Net (Approx.)	25.0kg (55.1lbs)
				Gross (Approx.)	28.5kg (62.8lbs)
G-19	**Carton**		Master Carton		No
				Content	--- Sets
				Material	--- / ---
				Dimensions W x D x H(mm)	---
				Description of Origin	---
			Gift Box	Material	Double/White
				W/Color Photo Label	No
				Dimensions W x D x H(mm)	660 x 575 x 625
				Description of Origin	Yes
			Drop Test	Natural Dropping At	1 Corner / 2 Edges / 4 Surfaces
				Height (cm)	60 (ORION SPEC:31)
			Container Stuffing (40' container)		216 Sets
G-20	**Material**		Cabinet	Front	PS 94V0 DECABROM
				Rear	PS 94V0 DECABROM
				Jack Panel	-
			PCB	Non-Halogen Demand	No
				Eyelet Demand	Yes
G-21	**Environment**		Environmental standard requirement (by buyer)		Green procurement of TOSHIBA
				Pb-free	Phase3(Phase3A)

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 7 screws ①.
2. Remove the screw ② which are used for holding the Back Cabinet.
3. Remove the AC cord from the AC cord hook ③.
4. Remove the Back Cabinet in the direction of arrow.

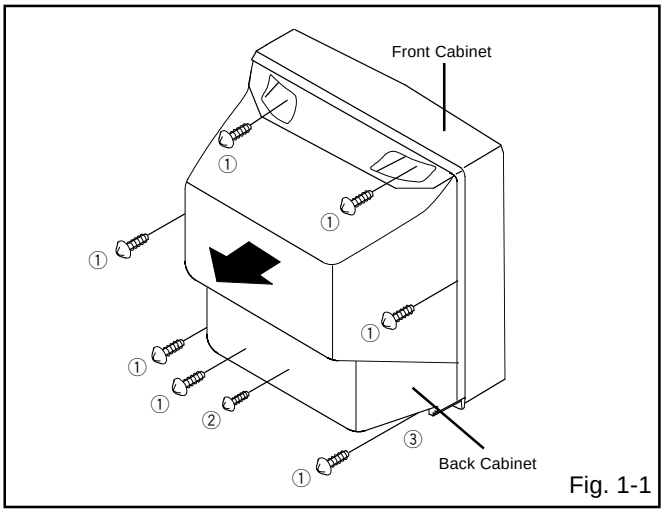


Fig. 1-1

1-2: CRT PCB (Refer to Fig. 1-2)

CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap. (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connector: **(CP801)**.
3. Remove the CRT PCB in the direction of arrow.

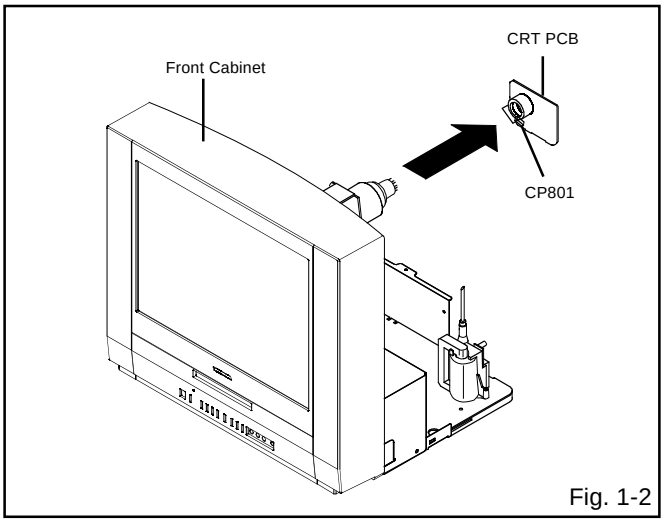


Fig. 1-2

1-3: AV PCB/DVD BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors: **(CP301, CP302, CP401 and CP3800)**.
3. Remove the AV PCB/DVD Block in the direction of arrow.

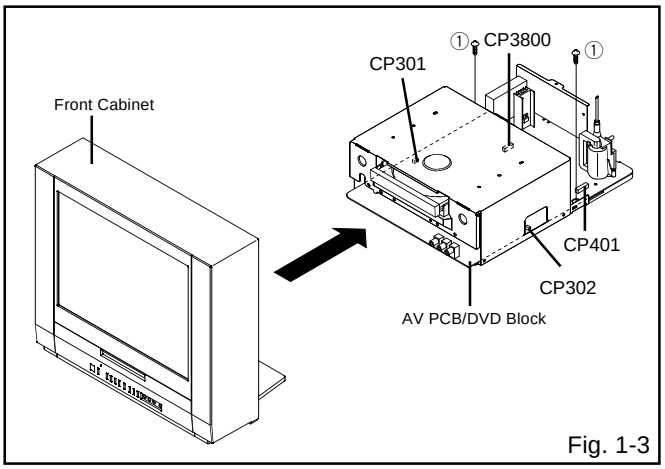


Fig. 1-3

1-4: DVD BLOCK (Refer to Fig. 1-4)

1. Remove the 11 screws ①.
2. Remove the Top Shield in the direction of arrow (A).
3. Disconnect the following connectors: **(CP8001 and CP8002)**.
4. Remove the 4 screws ②.
5. Remove the DVD Block in the direction of arrow (B).
6. Remove the screw ③.
7. Remove the Jack Shield.
8. Remove the AV PCB in the direction of arrow (C).

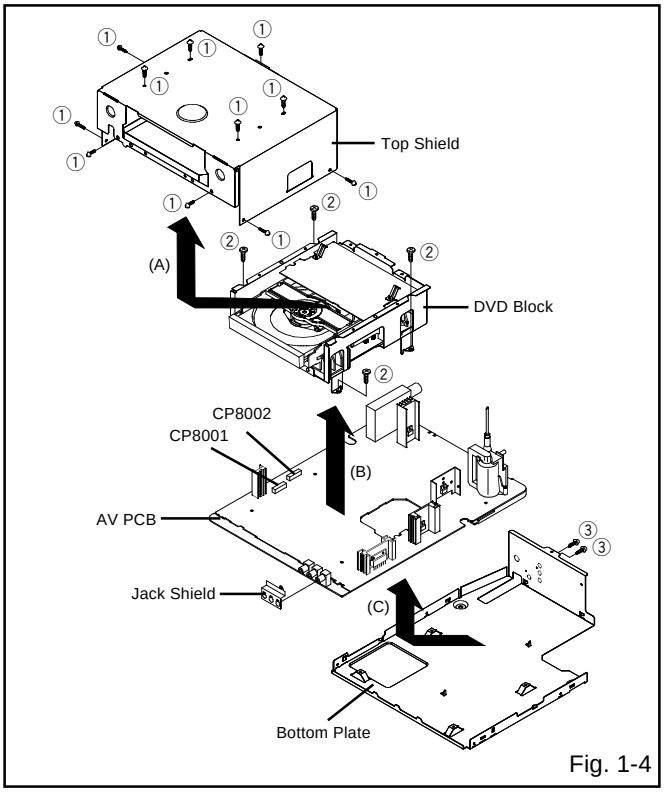


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

1-5: DVD PCB/DVD DECK (Refer to Fig. 1-5)

1. Short circuit the position shown in **Fig. 1-5** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Unlock the 2 supports ①.
3. Remove the Front Tray Plate in the direction of arrow (A).
4. Remove the 4 screws ②.
5. Remove the DVD Deck in the direction of arrow (A).
6. Disconnect the following connectors: **(CP2301, CP2302 and CP2303)**.
7. Remove the 2 screws ③.
8. Remove the DVD PCB in the direction of arrow (B).

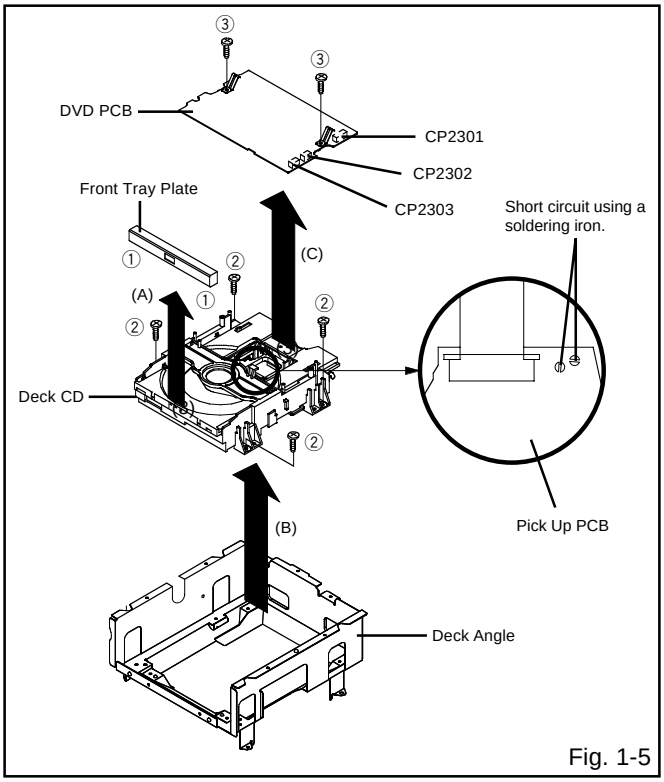


Fig. 1-5

NOTE

1. Before your operation, please read “PREPARATION OF SERVICING”.
2. Use the Lead Free solder.
3. Manual soldering conditions
   - Soldering temperature: 350 ± 5˚C
   - Soldering time: Within 2 seconds
   - Soldering combination: Sn-3.0Ag-0.5Cu
4. When Soldering/Removing of solder, use the drawing equipment over the Pick Up Unit to keep the Flux smoke away from it.
5. When installing the DVD Deck, remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF DVD DECK PARTS

NOTE

1. Disassemble only the DVD DECK PARTS parts listed here. Minute adjustments are needed if the disassembly is done. If the repair is needed except listed parts, replace the DVD MECHA ASS'Y.

2-1: TRAY (Refer to Fig. 2-1-A)

1. Set the Tray opened. **(Refer to the DISC REMOVAL METHOD AT NO POWER SUPPLY)**
2. Unlock the 2 supports ① and remove the Tray.

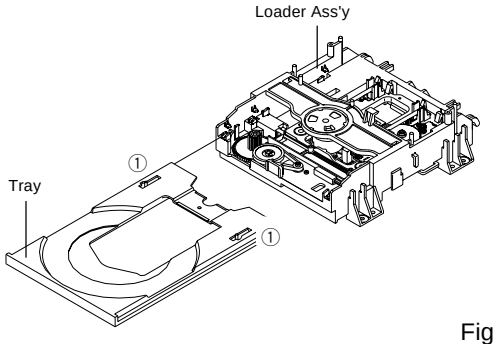


Fig. 2-1-A

NOTE

1. In case of the Tray installation, install them as the circled section of Fig. 2-1-B so that the each markers are met.

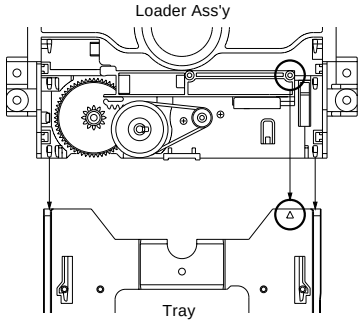


Fig. 2-1-B

2-2: TRAVERSE ASS'Y (Refer to Fig. 2-2-A)

1. Remove the screw ①.
2. Unlock the 2 supports ②.
3. Remove the Insulator (R) from the Loader Sub Ass'y.
4. Remove the Traverse Ass'y.

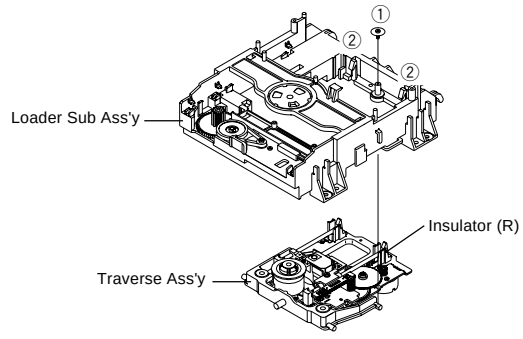


Fig. 2-2-A

NOTE

1. In case of the Traverse Ass'y, install it from (1) to (4) in order. **(Refer to Fig. 2-2-B)**
2. In case of the Traverse Ass'y installation, hook the wire on the Loader Ass'y as shown Fig. 2-2-C.

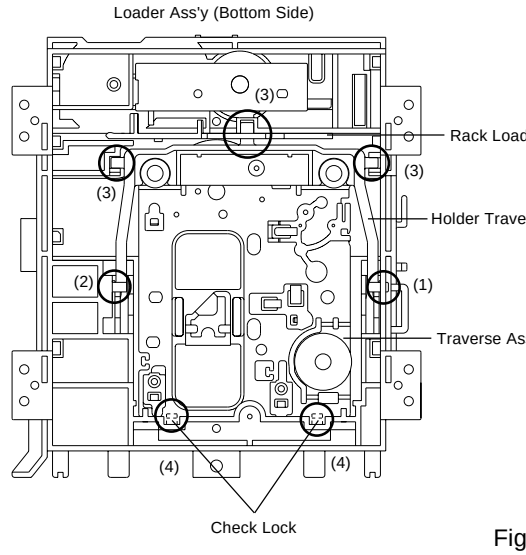


Fig. 2-2-B

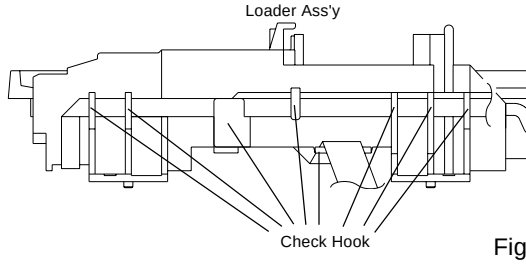
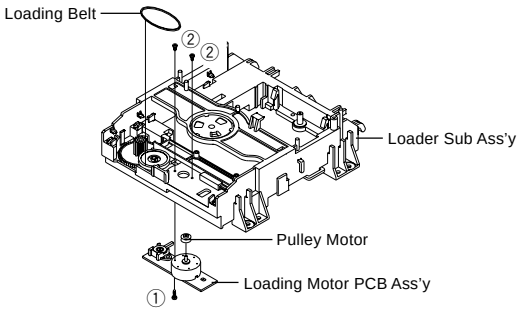


Fig. 2-2-C

DISASSEMBLY INSTRUCTIONS

2-3: LOADING MOTOR PCB ASS'Y/ LOADING BELT (Refer to Fig. 2-3-A)

1. Remove the Loading Belt.
2. Remove the screw ①.
3. Remove the 2 screws ②.
4. Remove the Loading Motor PCB Ass'y.
5. Remove the Pulley Motor.



• Screw Torque: 2.5 ± 0.3kgf•cm (Screw ①)
• Screw Torque: 1.0 ± 0.3kgf•cm (Screw ②)

Fig. 2-3-A

NOTE

1. In case of the Pulley Motor installation, check if the value of the Fig. 2-3-B is correct.
2. When installing the Loading Motor, do it on the position of Fig. 2-3-C with the following soldering conditions.
   Manual soldering conditions
   • Soldering temperature: 350 ± 5˚C
   • Soldering time: Within 4 seconds
   • Soldering combination: Sn-3.0Ag-0.5Cu
3. When installing the Loading Motor PCB Ass'y, install it correctly as Fig. 2-3-C.
4. In case of the Loading Motor PCB Ass'y installation, hook the wire on the Traverse Ass'y as shown Fig. 2-3-C.

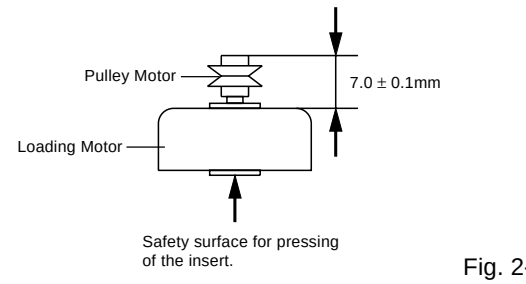


Fig. 2-3-B

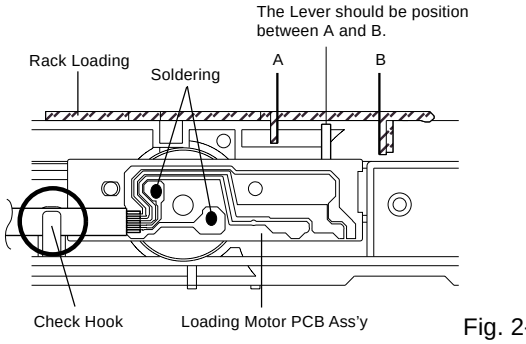


Fig. 2-3-C

2-4: RACK LOADING/GEAR MAIN/GEAR PULLEY (Refer to Fig. 2-4-A)

1. Press down the catcher ① and slide the Rack Loading.
2. Unlock the support ② and remove the Gear Pulley.
3. Remove the Gear Main.

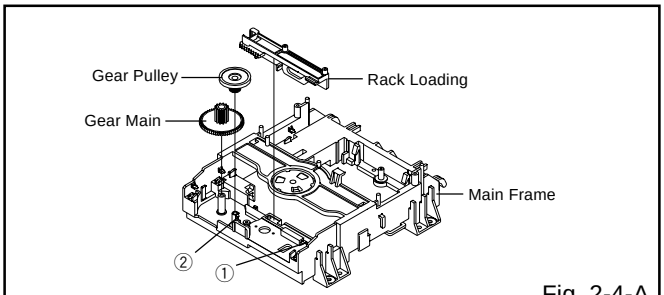


Fig. 2-4-A

NOTE

1. In case of the Rack Loading installation, do not mesh it to the Gear Main as shown the Fig. 2-4-B.

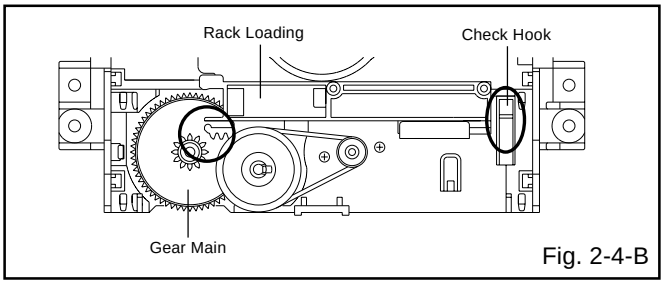


Fig. 2-4-B

2-5: CLAMPER ASS'Y (Refer to Fig. 2-5-A)

1. Press the Clamper and rotate the Plate Clamper clockwise, then unlock the 3 supports ①.
2. Remove the Clamper Plate, Magnet Clamper and Clamper.

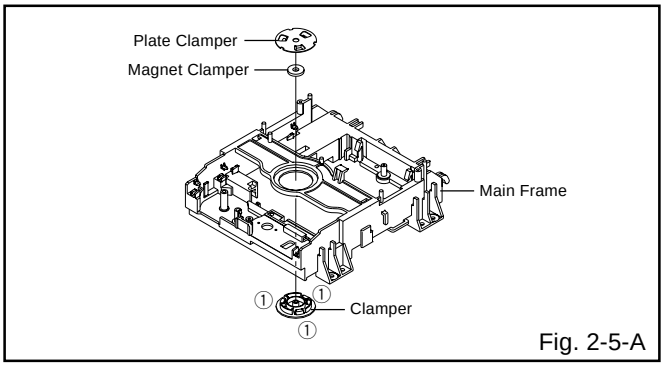


Fig. 2-5-A

NOTE

1. In case of the Clamper Ass'y installation, install correctly as Fig. 2-5-B.

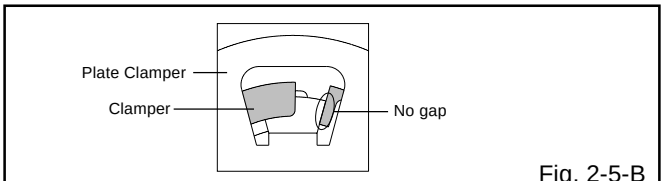


Fig. 2-5-B

DISASSEMBLY INSTRUCTIONS

2-6: HOLDER TRAVERSE/INSULATOR (F)/INSULATOR (R) (Refer to Fig. 2-6-A)

1. Remove the Holder Traverse.
2. Remove the 2 Insulator (F).
3. Remove the Insulator (R).

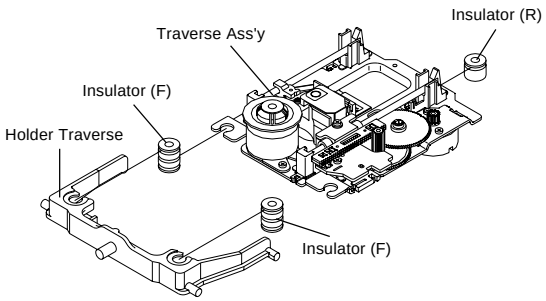


Fig. 2-6-A

NOTE

1. In case of the Insulator (F) installation, install correctly as Fig. 2-6-B.
2. In case of the Insulator (R) installation, install correctly as Fig. 2-6-C.

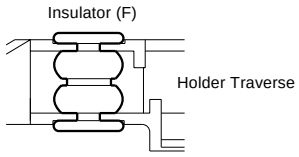


Fig. 2-6-B

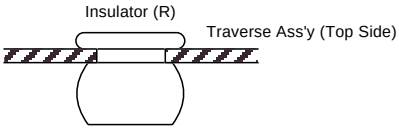
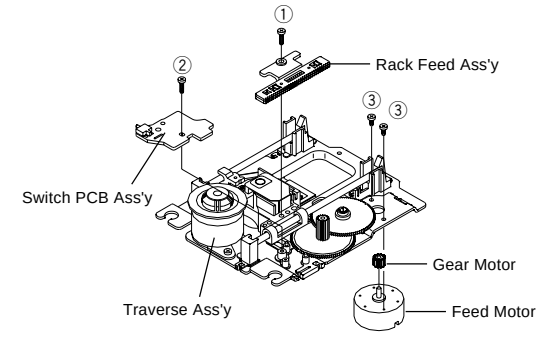


Fig. 2-6-C

2-7: RACK FEED ASS'Y/SWITCH PCB ASS'Y/FEED MOTOR (Refer to Fig. 2-7-A)

1. Remove the screw ①.
2. Remove the Rack Feed Ass'y.
3. Remove the screw ②.
4. Remove the Switch PCB Ass'y.
5. Remove the 2 screw ③.
6. Remove the Feed Motor.
7. Remove the Gear Motor.



- Screw Torque: 5.0 ± 0.3kgf•cm (Screw ①)
- Screw Torque: 3.0 ± 0.3kgf•cm (Screw ②)
- Screw Torque: 1.0 ± 0.3kgf•cm (Screw ③)

Fig. 2-7-A

NOTE

1. When pushing the Rack Feed in the direction of the arrow, it should be restored to the original position by the spring force. **(Refer to Fig. 2-7-B)**
2. In case of the Gear Motor installation, check if the value of the Fig. 2-7-C is correct.
3. When installing the wire of the Switch PCB Ass'y, install it correctly as Fig. 2-7-D.
   Manual soldering conditions
   - Soldering temperature: 350 ± 5˚C
   - Soldering time: Within 4 seconds
   - Soldering combination: Sn-3.0Ag-0.5Cu
4. After the assembly of the Traverse Ass'y, hook the wire on the Traverse Ass'y as shown Fig. 2-7-E.

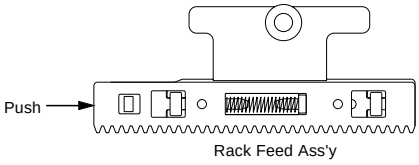


Fig. 2-7-B

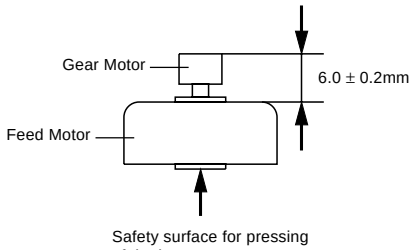
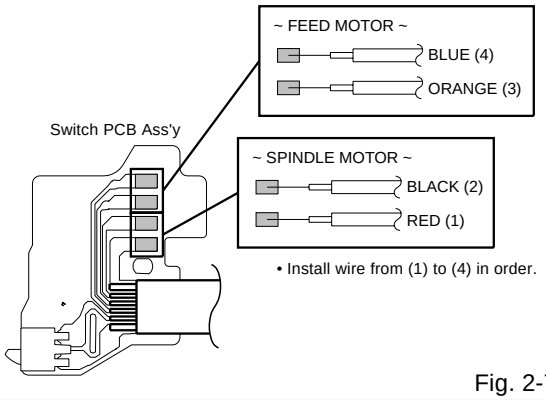


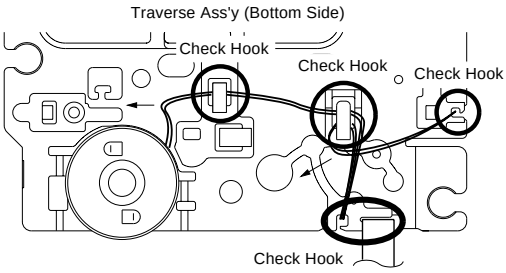
Fig. 2-7-C

DISASSEMBLY INSTRUCTIONS



• Install wire from (1) to (4) in order.

Fig. 2-7-D



• Loosen the wire in the direction of the arrow.

Fig. 2-7-E

2-8: FFC WIRE HANDLING

1. When installing the FFC, fold it correctly and install it as shown from Fig. 2-8-A to Fig. 2-8-C.

NOTE

1. Do not make the folding lines except the specified positions for the FFC.

[24 pin FFC]

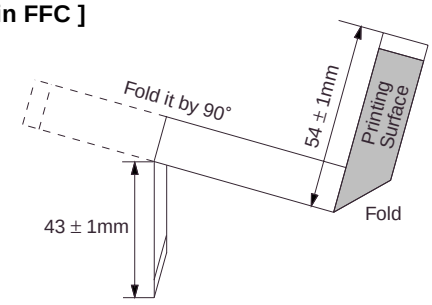
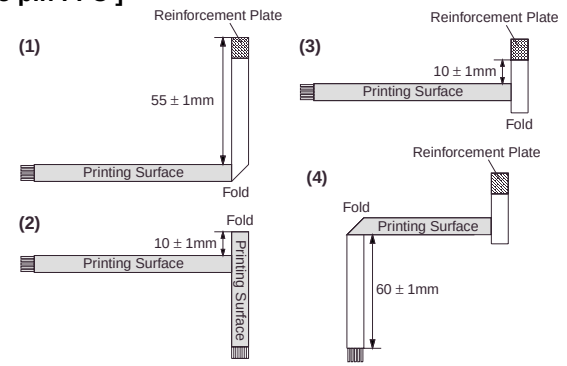


Fig. 2-8-A

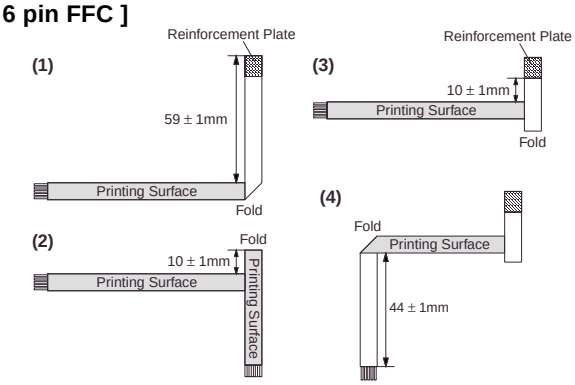
[5 pin FFC]



• Proceed the steps (1) through (4).

Fig. 2-8-B

[6 pin FFC]



• Proceed the steps (1) through (4).

Fig. 2-8-C

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 3-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

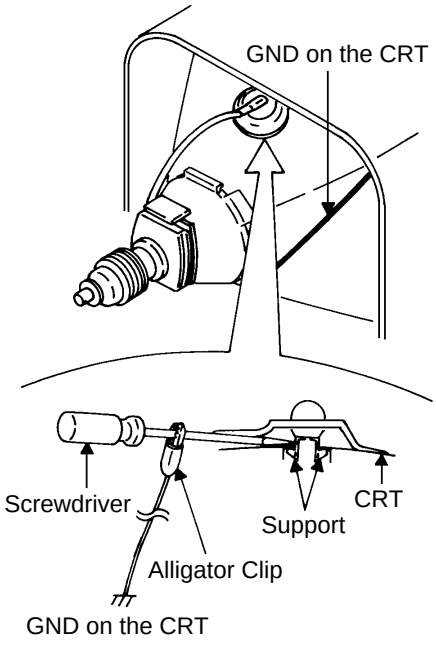


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 3-2.)**

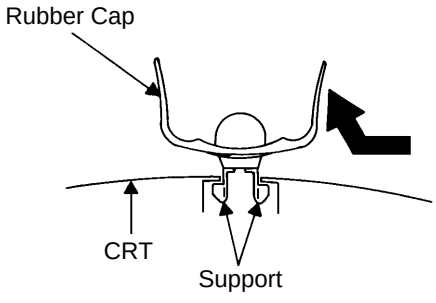


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 3-3.)**

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

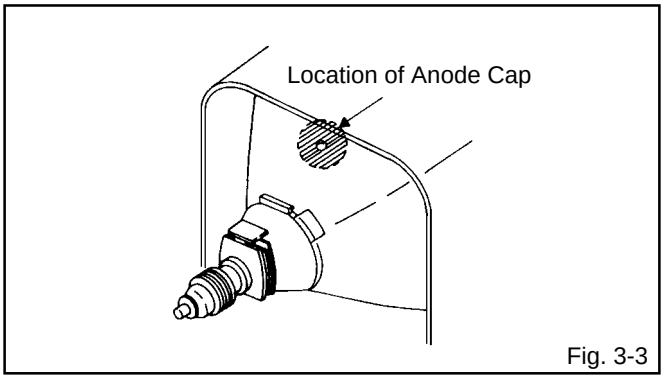


Fig. 3-3

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 3-4.)**

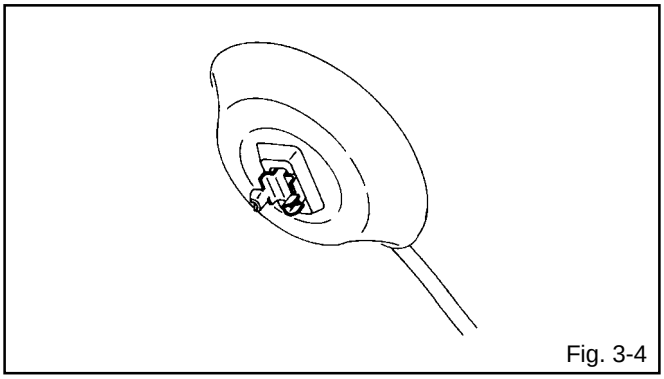


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 3-5**.

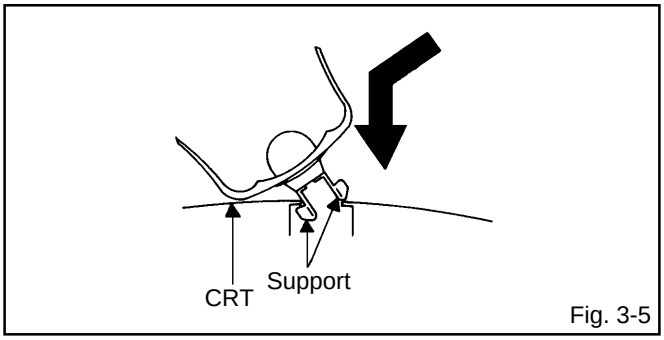


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 4-1.)**

   NOTE

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

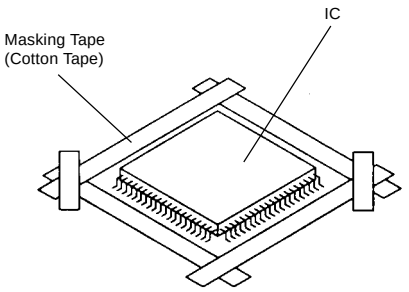


Fig. 4-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 4-2.)**

   NOTE

   Do not rotate or move the IC back and forth , until IC can move back and forth easily after desoldering the leads completely.

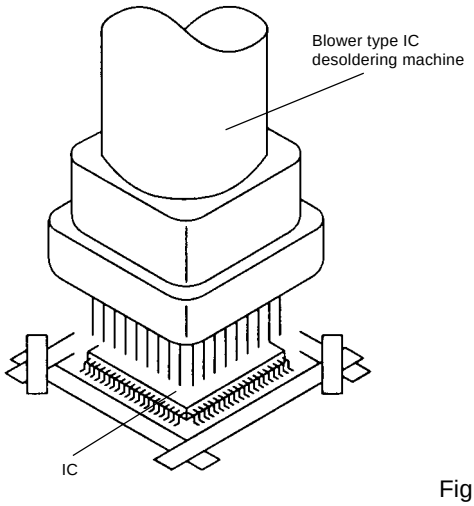


Fig. 4-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 4-3.)**

   NOTE

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

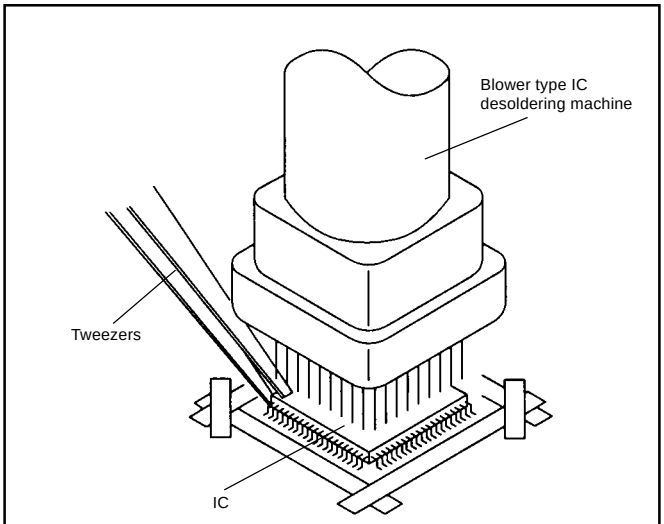


Fig. 4-3

4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 4-4.)**

   NOTE

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

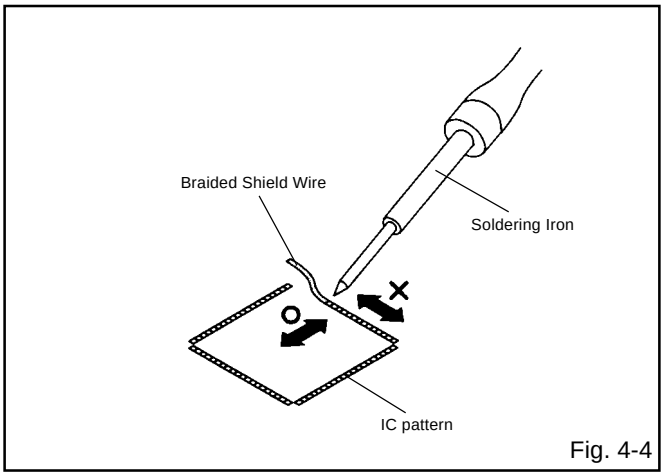


Fig. 4-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 4-5.)**

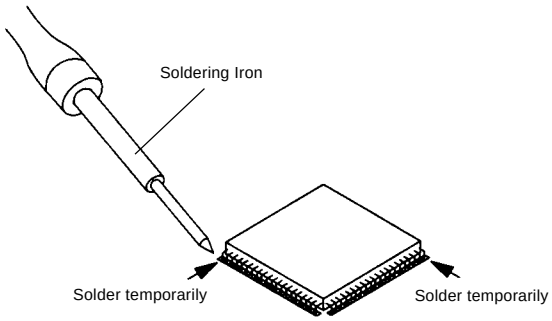


Fig. 4-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 4-6.)**

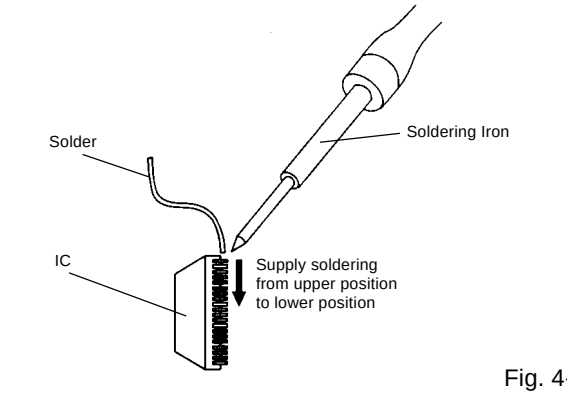


Fig. 4-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 4-7.)**

   NOTE

   Do not absorb the solder to excess.

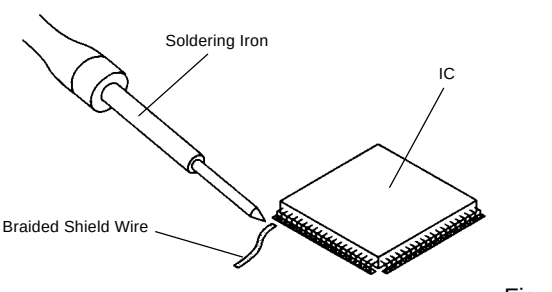


Fig. 4-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 4-8.)**

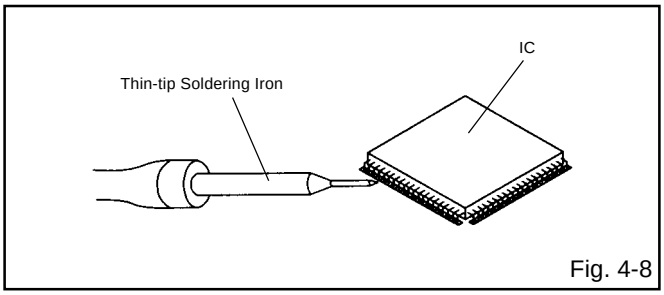


Fig. 4-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   NOTE

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, always be sure to replace the IC in this case.

SERVICE MODE LIST

This unit is provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit and on the remote control for more than the standard time (second).

Set Condition	Set Key	Remocon Key	Standard Time	Operations
TV mode	VOL. DOWN (Minimum)	0	2 sec.	Releasing of V-CHIP PASSWORD.
TV mode	VOL. DOWN (Minimum)	1	2 sec.	Initialization of factory data on TV. NOTE: Do not use this for the normal servicing. If you set factory initialization, the memories are reset such as the channel setting, and the POWER ON total hours.
DVD mode (No disc)	VOL. DOWN (Minimum)	4	2 sec.	Initialization of factory data on DVD. NOTE: Do not use this for the normal servicing. The function will only work without the setting of DVD disc at DVD mode.
TV mode	VOL. DOWN (Minimum)	6	2 sec.	POWER ON total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
ALL mode	VOL. DOWN (Minimum)	9	2 sec.	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).
DVD mode (No disc)	STOP	7	3 sec.	Releasing of PARENTAL LOCK. Refer to the “PARENTAL CONTROL - RATING LEVEL”. NOTE: The function will only work without the setting of DVD disc at DVD mode.
DVD mode (Stop)	STOP	9	3 sec.	Tray cannot be opened. Refer to the “TRAY LOCK”. NOTE: No indications on the screen when the Tray Lock is setting.

CONFIRMATION OF HOURS USED

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

NOTE: If you set factory initialization, the total hours is reset to "0".

1. Turn on the POWER, and set to the TV mode.
2. Set the VOLUME to minimum.
3. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 2 seconds.
4. After the confirmation of using hours, turn off the power.

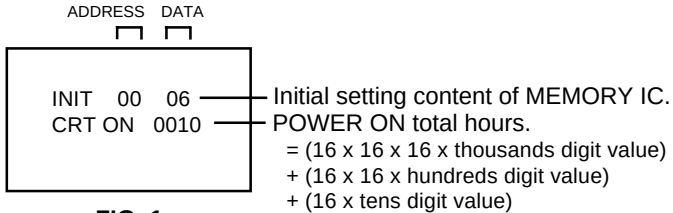

ADDRESS
DATA
INIT 00 06
CRT ON 0010
Initial setting content of MEMORY IC.
POWER ON total hours.
= (16 x 16 x 16 x thousands digit value)
+ (16 x 16 x hundreds digit value)
+ (16 x tens digit value)
+ (ones digit value)

FIG. 1

WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: No need to set data for after position INI 27 due to the adjustment value.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	06	3F	4C	00	D1	05	30	25	15	57	***1**	00	D8	40	0F	4F
10	60	50	50	AA	45	79	63	50	50	78	52	3A	80	11	00	00
20	80	88	83	88	89	88	FF	FF	---	---	---	---	---	---	---	---

***1**

INI	USA	CANADA
0A	03	02

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

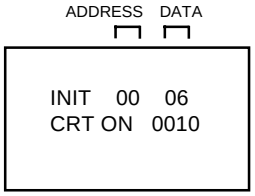


FIG. 1

3. ADDRESS is now selected and should "blink". Using the VOL. UP/DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using VOL. UP/DOWN button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input. **After the data input, set to the initializing of shipping.**
9. Turn POWER on.
10. Press both VOL. DOWN button on the set and Channel button **(1**) on the remote control for more than 2 seconds.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.

The unit will now have the correct DATA for the new MEMORY IC.

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor with a heat sink, apply the silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor).

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter
3. AC Voltmeter
4. Pattern Generator
5. Multi-Sound Signal Generator

On-Screen Display Adjustment

1. Set the VOLUME to minimum.
2. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 2 seconds to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

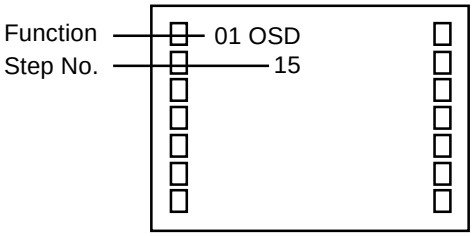


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(1-0)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
01	OSD H	35	CONT. AV(MIN)
02	OSD CONTRAST	36	COL. AV(CENT.)
03	CUT OFF	37	COL. AV(MAX)
04	H POSITION	38	COL. AV(MIN)
05	H. BLK L	39	TINT AV
06	H. BLK R	40	SHARPNESS AV
07	V SIZE	41	SUB BIAS
08	V POSITION	42	BRI. DVD(CENT.)
09	V LINEARITY	43	BRI. DVD(MAX)
10	V S CORRECTION	44	BRI. DVD(MIN)
11	V. COMP	45	CONT. DVD(CENT.)
12	R CUT OFF	46	CONT. DVD(MAX)
13	G CUT OFF	47	CONT. DVD(MIN)
14	B CUT OFF	48	COL. DVD(CENT.)
15	R DRIVE	49	COL. DVD(MAX)
16	G DRIVE	50	COL. DVD(MIN)
17	B DRIVE	51	TINT DVD
18	BRIGHTNESS(CENT.)	52	SHARPNESS DVD
19	BRIGHTNESS(MAX)	53	SUB BIAS
20	BRIGHTNESS(MIN)	54	BRI. GAME(CENT.)
21	CONTRAST(CENT.)	55	BRI. GAME(MAX)
22	CONTRAST(MAX)	56	BRI. GAME(MIN)
23	CONTRAST(MIN)	57	CONT. GAME(CENT.)
24	COLOR(CENT.)	58	CONT. GAME(MAX)
25	COLOR(MAX)	59	CONT. GAME(MIN)
26	COLOR(MIN)	60	SUB BIAS
27	TINT	61	TUNING V MUTE
28	SHARPNESS	62	POWER ON V MUTE
29	SUB BIAS	63	INPUT LEVEL
30	BRI. AV(CENT.)	64	SEPARATION L
31	BRI. AV(MAX)	65	SEPARATION H
32	BRI. AV(MIN)	66	X-RAY TEST
33	CONT. AV(CENT.)	67	H.STOP
34	CONT. AV(MAX)	68	H. FREQ

Fig. 1-2

2. BASIC ADJUSTMENTS

2-1: CONSTANT VOLTAGE

1. Place the set in is AV MODE without signal.
2. Using the remote control, set the brightness and contrast to normal position.
3. Connect the digital voltmeter to **TP401**.
4. Adjust the **VR3800** until the digital voltmeter is 115 ± 0.3V.

2-2: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-3: CUT OFF

1. Adjust the unit to the following settings.
   R CUT OFF=7F, G CUT OFF=7F, B CUT OFF=7F,
   R DRIVE=3F, G DRIVE=07, B DRIVE=3F
2. Place the set in Aging Test for more than 15 minutes.
3. Set condition is AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

ELECTRICAL ADJUSTMENTS

2-4: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "G DRIVE".
5. Press the CH. UP/DOWN button on the remote control to select the "R CUT OFF", "G CUT OFF", "B CUT OFF", "R DRIVE" or "B DRIVE".
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R CUT OFF, G CUT OFF, B CUT OFF, R DRIVE, and B DRIVE at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is looked like a white.

2-5: HORIZONTAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(04)** on the remote control to select "HPOSI".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-6: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(08)** on the remote control to select "VPOSI".
4. Check if the step No. V POSI is "01".
5. Adjust the **VR402** until the horizontal line becomes fit to notch of the shadow mask.
   (Refer to Fig. 2-1)

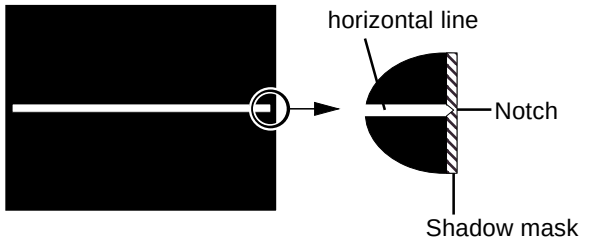


Fig. 2-1

2-7: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "VSIZE".
4. Press the VOL. UP/DOWN button on the remote control until the Up/Down OVER SCAN Quantity becomes equal to the Right/Left OVER SCAN Quantity.
5. Receive a broadcast and check if the picture is normal.

2-8: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-7. After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(09)** on the remote control to select "VLIN".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-9: SEPARATION

1. Set the multi-sound signal generator L-ch=1KHz, R-ch =Non input and receive the RF signal.
2. Connect the oscilloscope to the **SP351 code**.
3. Press the **AUDIO SELECT** button on the remote control to set to the stereo mode.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**64**) on the remote control to select "SEPAL".
5. Press the RIGHT/LEFT button on the remote control to adjust it until the R-ch output becomes minimum.
6. Press the CH UP button 1 time to set to "SEPAH" mode.
7. Press the RIGHT/LEFT button on the remote control to adjust it until the R-ch output becomes minimum.
8. Set the multi-sound signal generator L-ch=Non input, R-ch=1KHz and receive the RF signal.
9. Connect the oscilloscope to the **SP352 code**. Then perform the above adjustments 3~7.

ELECTRICAL ADJUSTMENTS

2-10: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the RIGHT/LEFT button on the remote control until the difference of A and B becomes minimum.
   (Refer to Fig. 2-2)

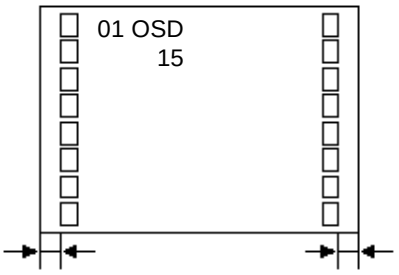


Fig. 2-2

2-11: LEVEL

1. Receive the monoscope pattern.
2. Connect the AC voltmeter to **pin 6 of CP101**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(63)** on the remote control to select "LVL".
4. Press the VOL. UP/DOWN button on the remote control until the AC voltmeter is 75 ± 2mV.

2-12: BRIGHT CENTER

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(18)** on the remote control to select "BRTC".
4. Press the RIGHT/LEFT button on the remote control until the white 10% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the INPUT button on the remote control to set to the AV mode.
7. Using the remote control, set the brightness and contrast to normal position.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(30)** on the remote control to select "BRTCA".
9. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible
10. Press the TV/DVD button on the remote control to set to the DVD mode.
11. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(42)** on the remote control to select "BRTCD".
12. Press the RIGHT/LEFT button on the remote control to set the same step numbers as the AV.
13. Press the GAME button on the remote control to set to the GAME mode.
14. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(54)** on the remote control to select "BRTCG".
15. Press the RIGHT/LEFT button on the remote control to set the same step numbers as the AV.

2-13: TINT CENTER

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP022**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(27)** on the remote control to select "TNTC".
5. Press the RIGHT/LEFT button on the remote control until the section "A" becomes a straight line.
   (Refer to Fig. 2-3)
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT button on the remote control to set to the AV mode.
8. Using the remote control, set the brightness, contrast, color and tint to normal position.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(39)** on the remote control to select "TNTCA".
10. Press the RIGHT/LEFT button on the remote control until the section "A" becomes a straight line.
    (Refer to Fig. 2-3)
11. Press the TV/DVD button on the remote control to set to the DVD mode.
12. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(51)** on the remote control to select "TNTCD".
13. Press the RIGHT/LEFT button on the remote control until the tint step No. becomes "40".

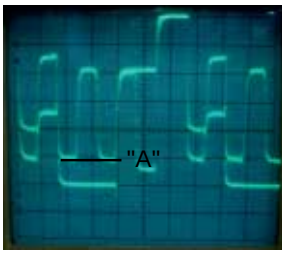


Fig. 2-3

ELECTRICAL ADJUSTMENTS

2-14: COLOR CENTER

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP024**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(24)** on the remote control to select "COLC".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 110 ± 5% of the white level. **(Refer to Fig. 2-4)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT button on the remote control to set to the AV mode.
9. Using the remote control, set the brightness, contrast, color and tint to normal position.
10. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(36)** on the remote control to select "COLCA".
11. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
12. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 110 ± 5% of the white level. **(Refer to Fig. 2-4)**
13. Press the TV/DVD button on the remote control to set to the DVD mode.
14. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(48)** on the remote control to select "COLCD".
15. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV.

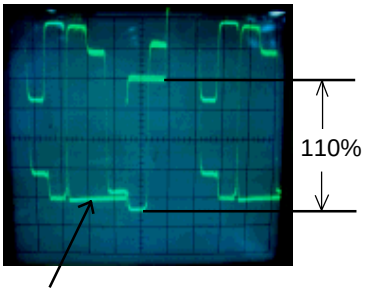


Fig. 2-4

2-15: CONTRAST MAX

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(22)** on the remote control to select "CNTX".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "50"
3. Receive a broadcast and check if the picture is normal.
4. Press the INPUT button on the remote control to set to the AV mode.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(34)** on the remote control to select "CNTXA".
6. Press the RIGHT/LEFT button on the remote control until the contrast step No. becomes "50"
7. Receive a broadcast and check if the picture is normal.
8. Press the TV/DVD button on the remote control to set to the DVD mode.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(46)** on the remote control to select "CNTXD".
10. Press the RIGHT/LEFT button on the remote control to increase the step numbers by 5 steps to the AV.
11. Press the GAME button on the remote control to set to the GAME mode.
12. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(58)** on the remote control to select "CNTXG".
13. Press the RIGHT/LEFT button on the remote control to set the same step numbers as the AV.

2-16: Confirmation of Fixed Value (Step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

NO.	FUNCTION	STEP NO.	NO.	FUNCTION	STEP NO.
02	OSD CONTRAST	03	44	BRI. DVD(MIN)	10
05	H. BLK L	00	45	CONT. DVD(CENT.)	2A
06	H. BLK R	02	47	CONT. DVD(MIN)	05
10	V S CORRECTION	0A	49	COL. DVD(MAX)	7F
11	V. COMP	03	50	COL. DVD(MIN)	07
16	G DRIVE	07	52	SHARPNESS DVD	18
19	BRIGHTNESS(MAX)	4A	53	SUB BIAS	50
20	BRIGHTNESS(MIN)	10	55	BRI. GAME(MAX)	4A
21	CONTRAST(CENT.)	2A	56	BRI. GAME(MIN)	10
23	CONTRAST(MIN)	05	57	CONT. GAME(CENT.)	2A
25	COLOR(MAX)	7F	59	CONT. GAME(MIN)	05
26	COLOR(MIN)	07	60	SUB BIAS	50
28	SHARPNESS	18	61	TUNING V MUTE	00
29	SUB BIAS	50	62	POWER ON V MUTE	40
31	BRI. AV(MAX)	4A	68	H. FREQ	3F
32	BRI. AV(MIN)	10			
33	CONT. AV(CENT.)	2A			
35	CONT. AV(MIN)	05			
37	COL. AV(MAX)	7F			
38	COL. AV(MIN)	07			
40	SHARPNESS AV	18			
41	SUB BIAS	50			
43	BRI. DVD(MAX)	4A			

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

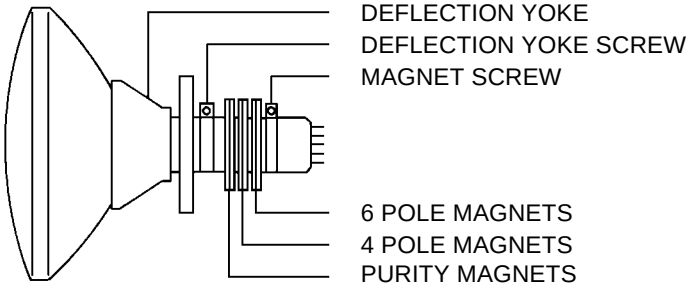


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

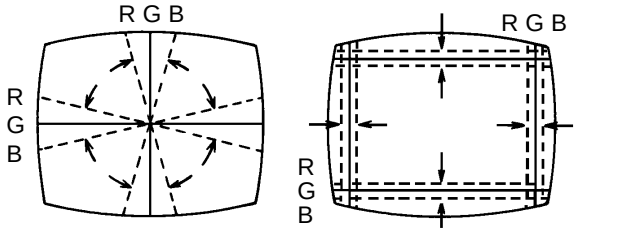
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

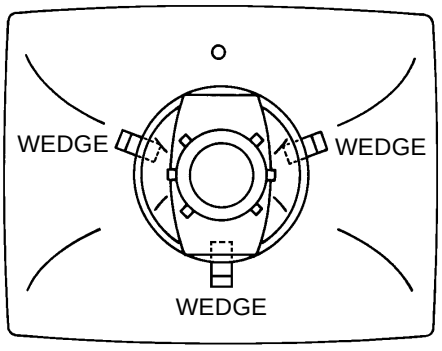
Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

Fig. 3-2-a

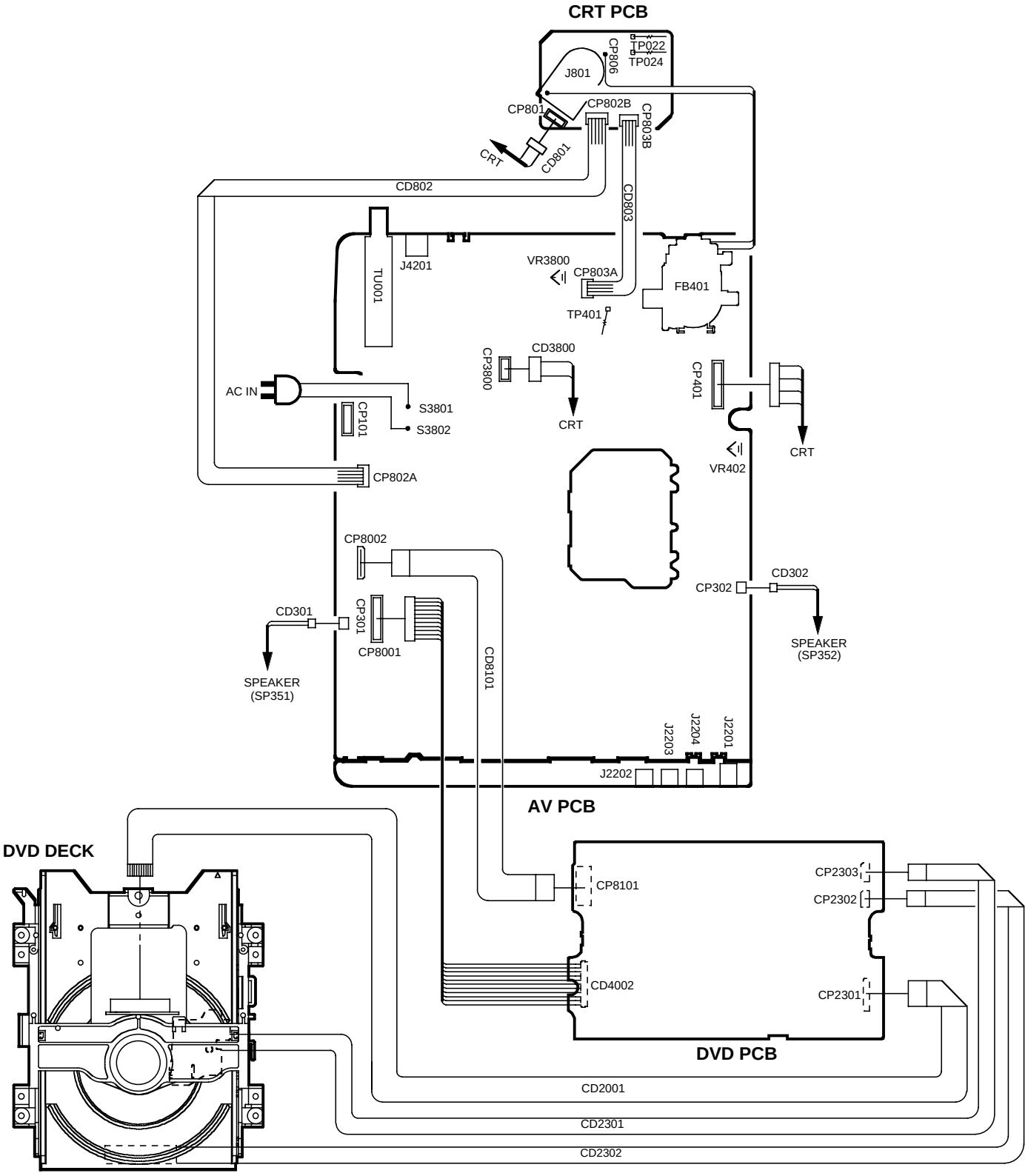


WEDGE POSITION

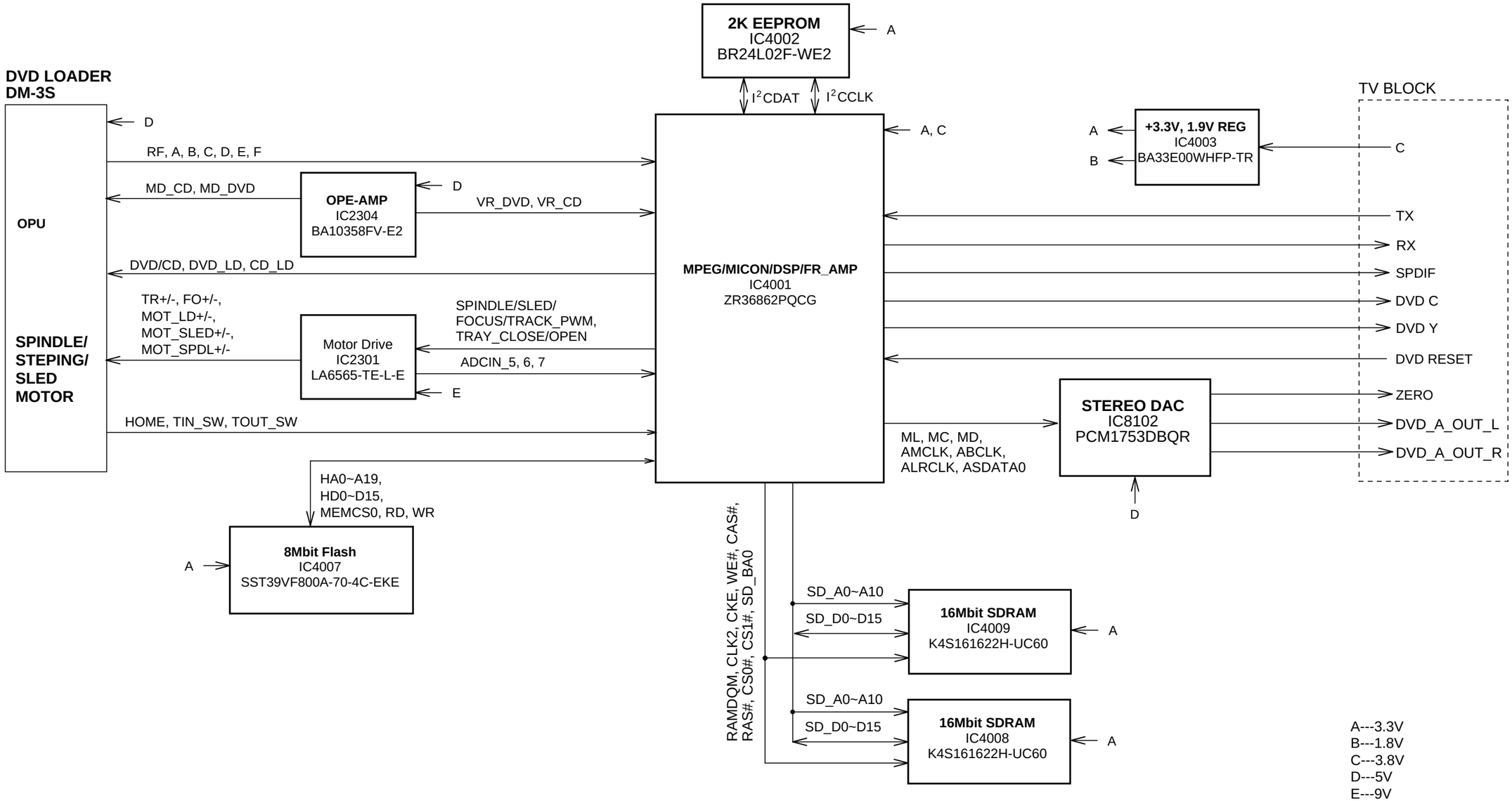
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)

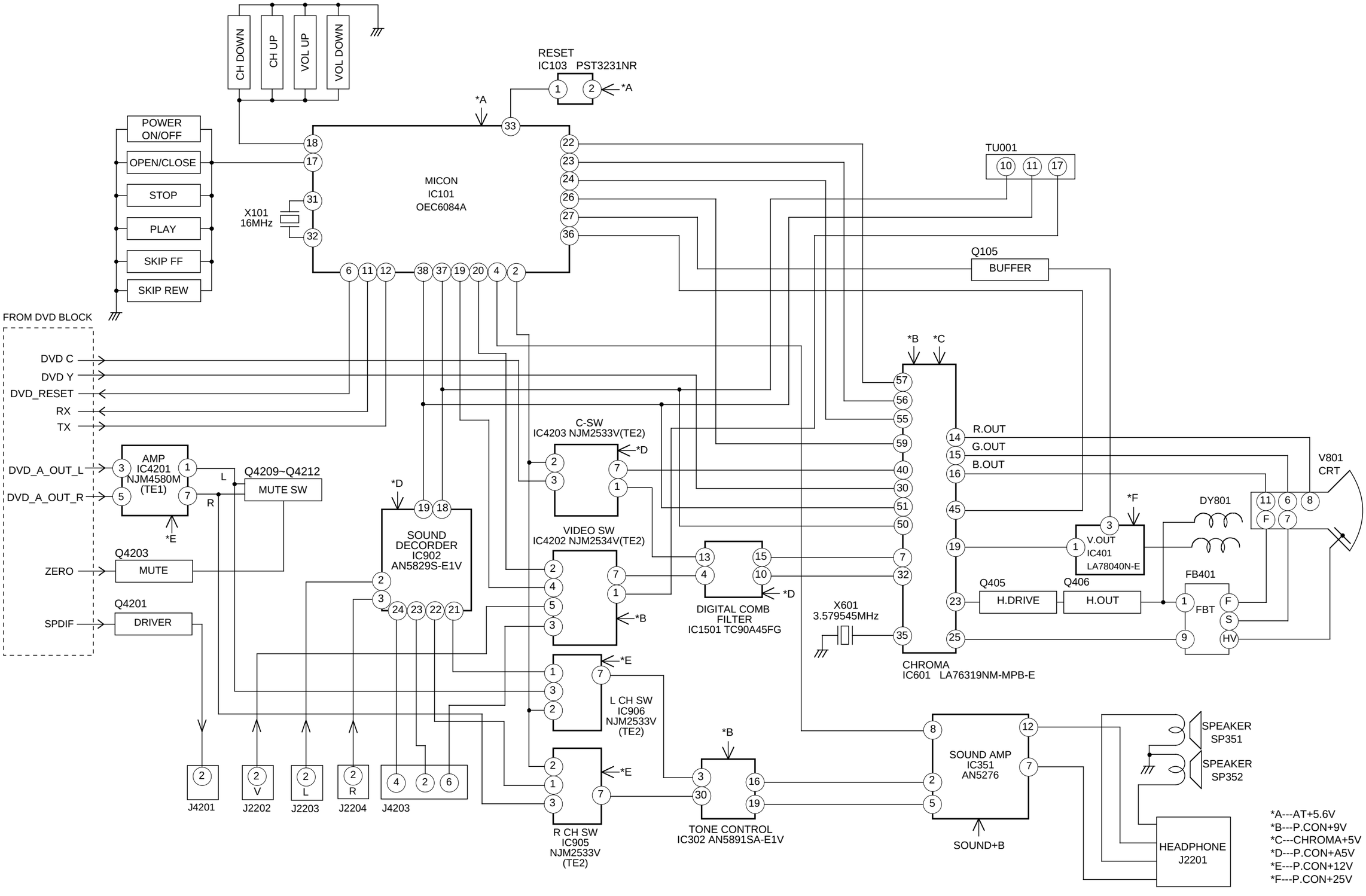


DVD BLOCK DIAGRAM

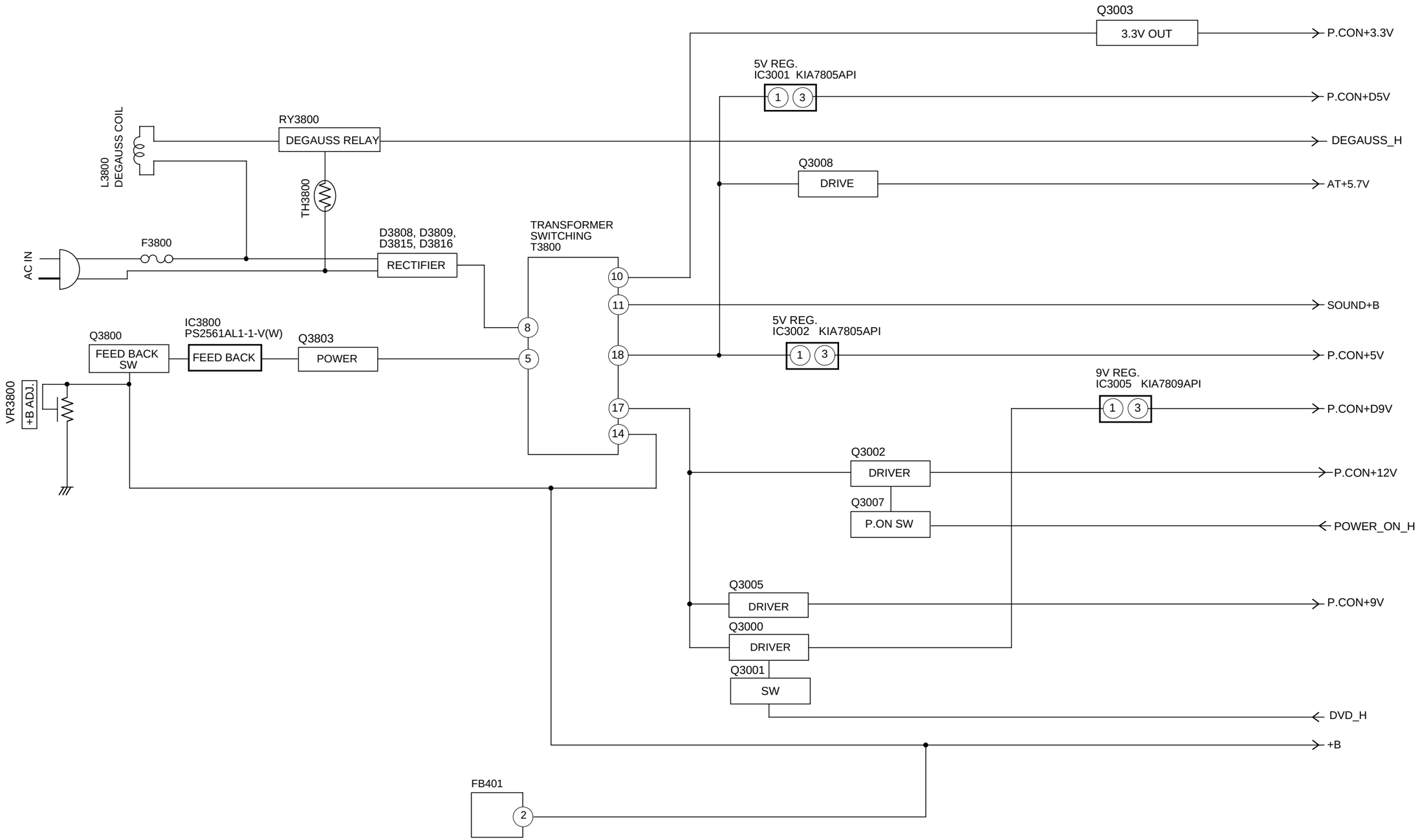


A---3.3V
B---1.8V
C---3.8V
D---5V
E---9V

TV BLOCK DIAGRAM

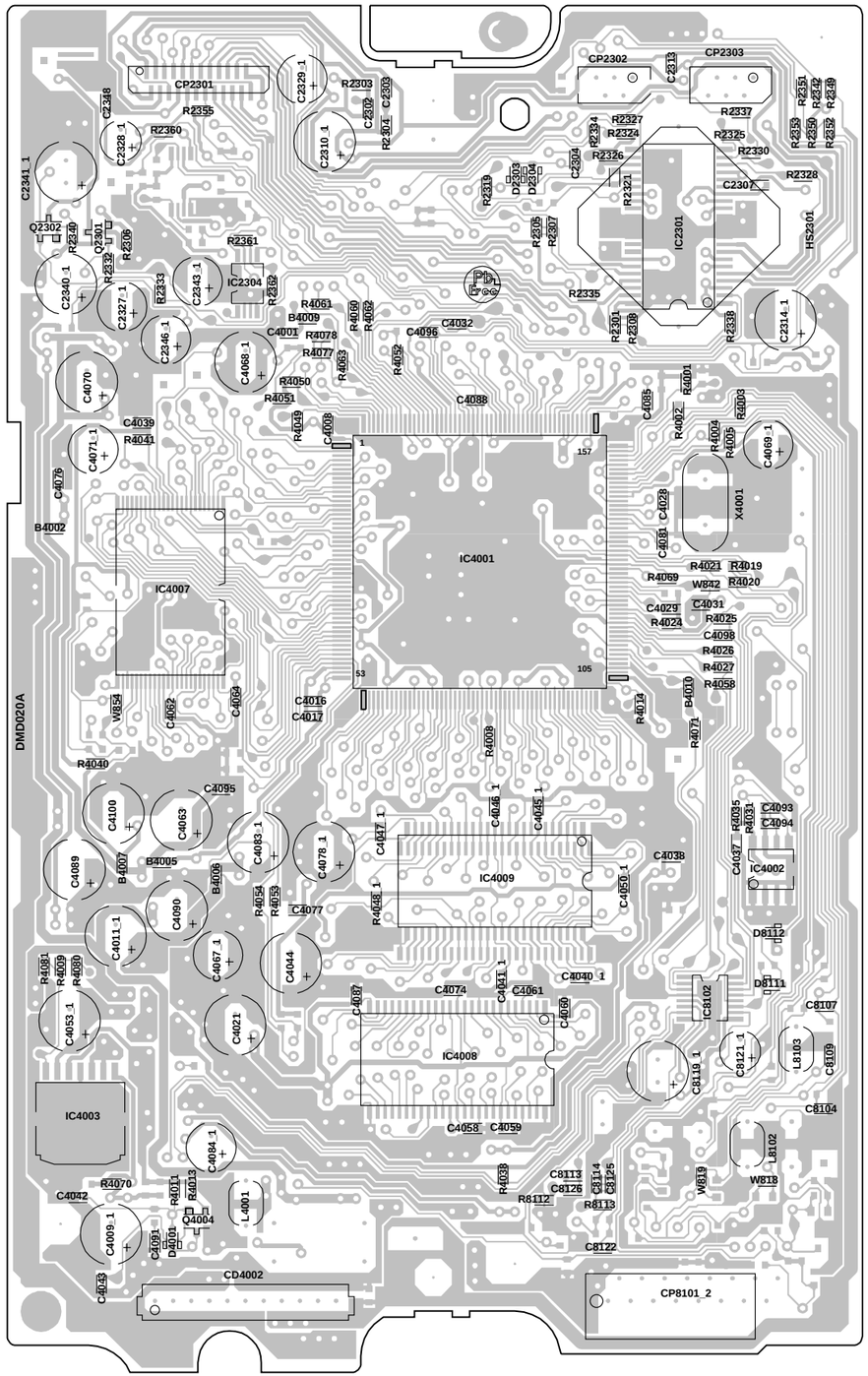


POWER BLOCK DIAGRAM

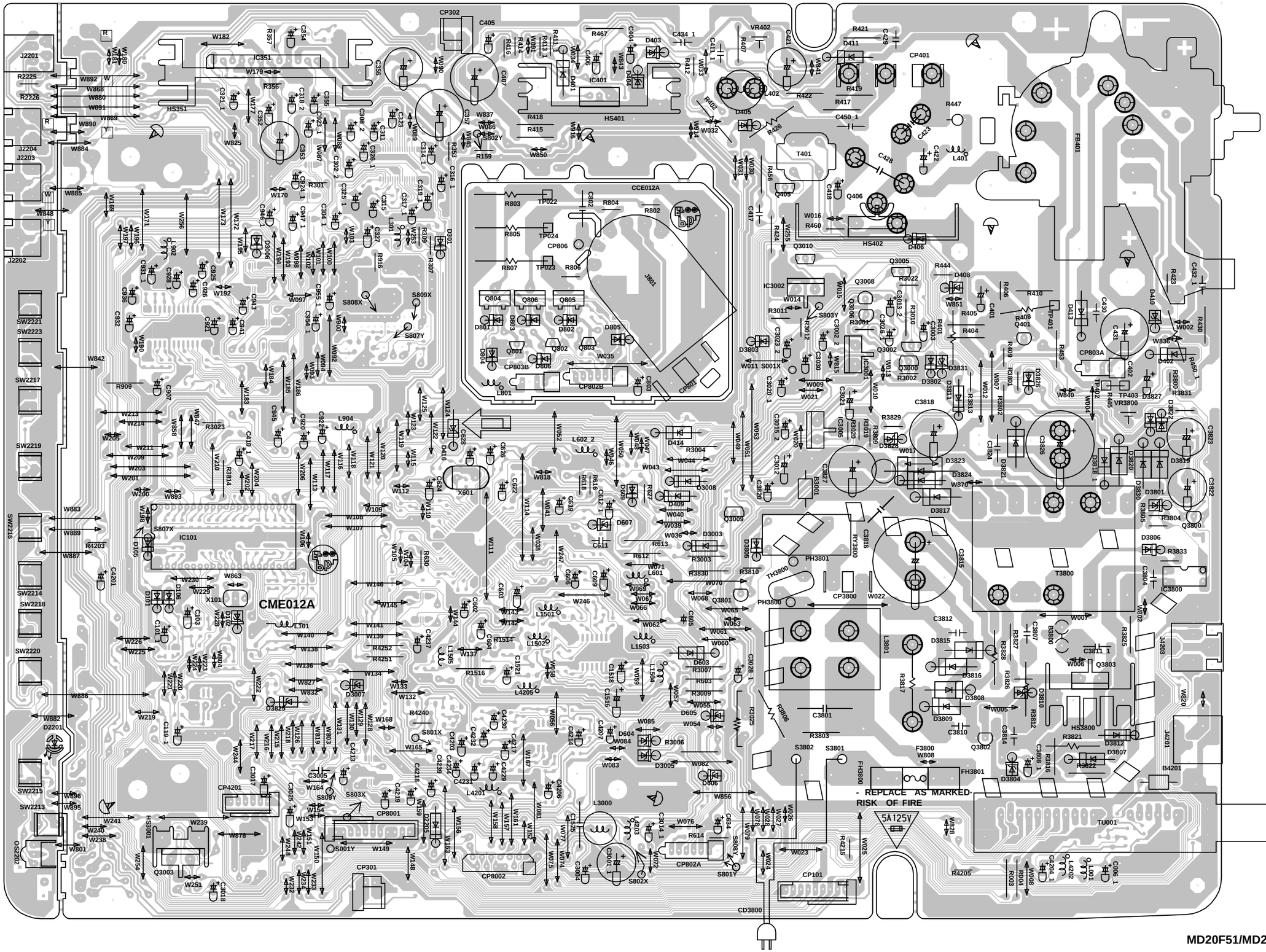


PRINTED CIRCUIT BOARDS

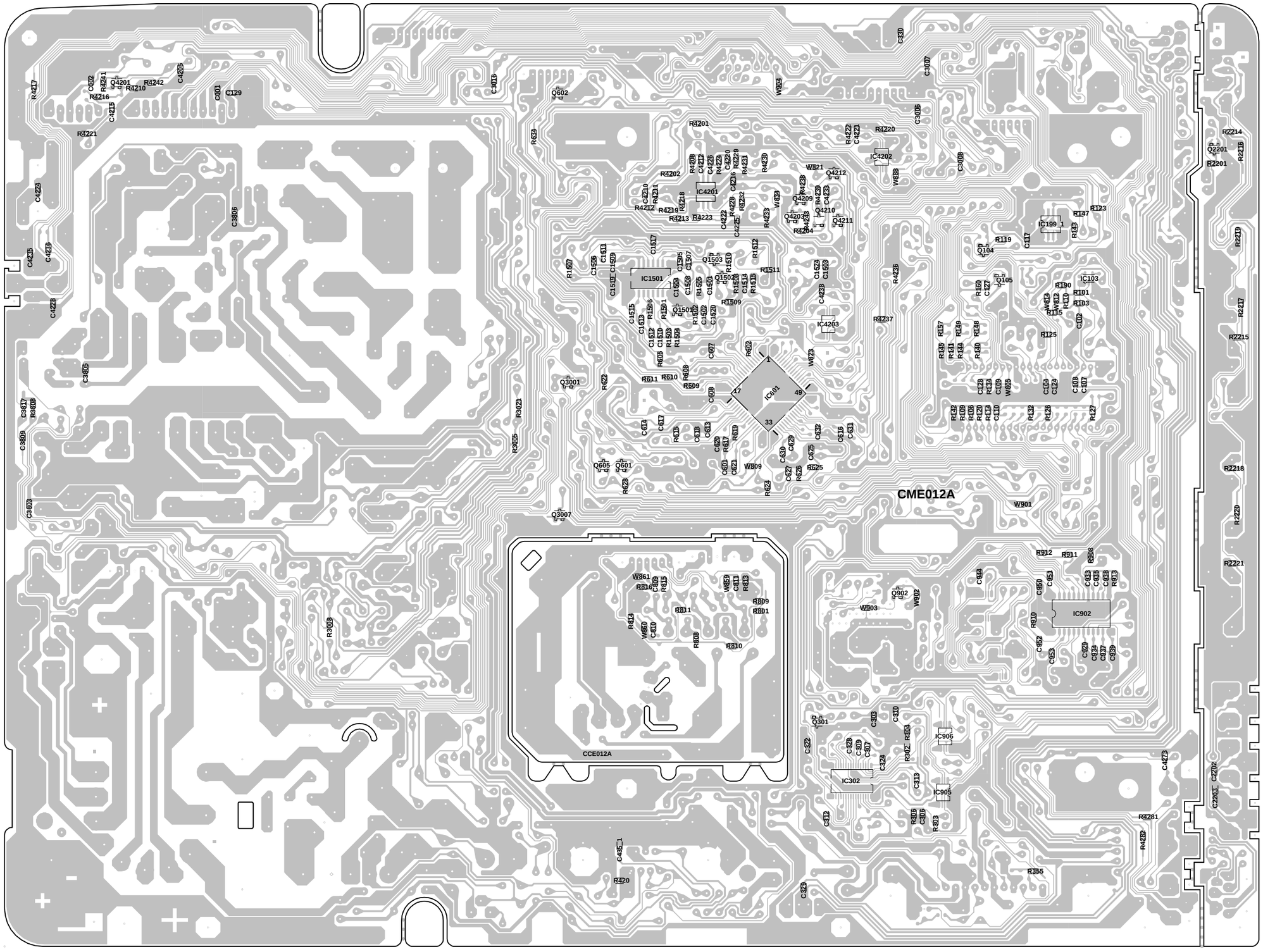
DVD (TOP SIDE)



PRINTED CIRCUIT BOARDS
AV/CRT (INSERTED PARTS)
SOLDER SIDE

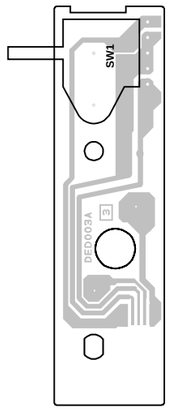


PRINTED CIRCUIT BOARDS
AV/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE

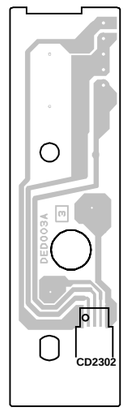


PRINTED CIRCUIT BOARDS

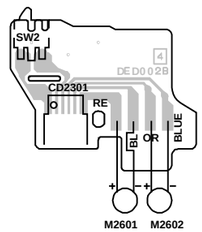
LOADING MOTOR (INSERTED PARTS)
SOLDER SIDE



LOADING MOTOR (CHIP MOUNTED PARTS)
SOLDER SIDE



SW
SOLDER SIDE



MPEG/MICON/DSP SCHEMATIC DIAGRAM

(DVD PCB)

MPEG/MICON/DSP/RF_AMP IC
IC4001
ZR36862PQCG

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE:THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

DIGITAL AUDIO SIGNAL(PB)

FROM/TO MEMORY

FROM/TO AUDIO/VIDEO

FROM/TO MOTOR DRIVE

FROM/TO REGULATOR1

REG+3.3V +1.9V IC
IC4003
BA33E00WHFP-TR

EEPROM IC
IC4002
BR24L02S-WE2

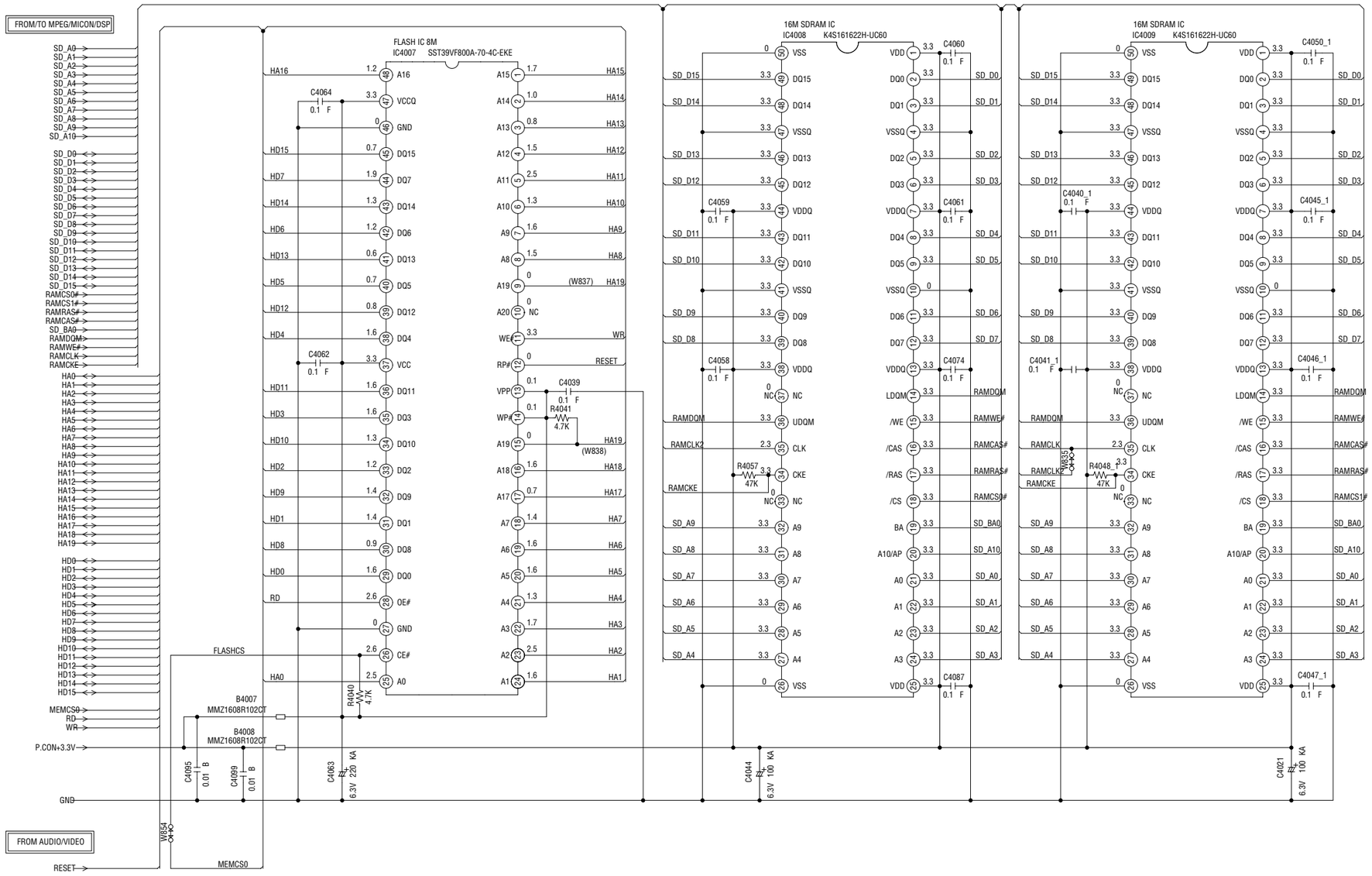
L4002
W5T29X7.5X19

L4001
2.2uH
0305

PCB130
DMD020

MEMORY SCHEMATIC DIAGRAM

(DVD PCB)

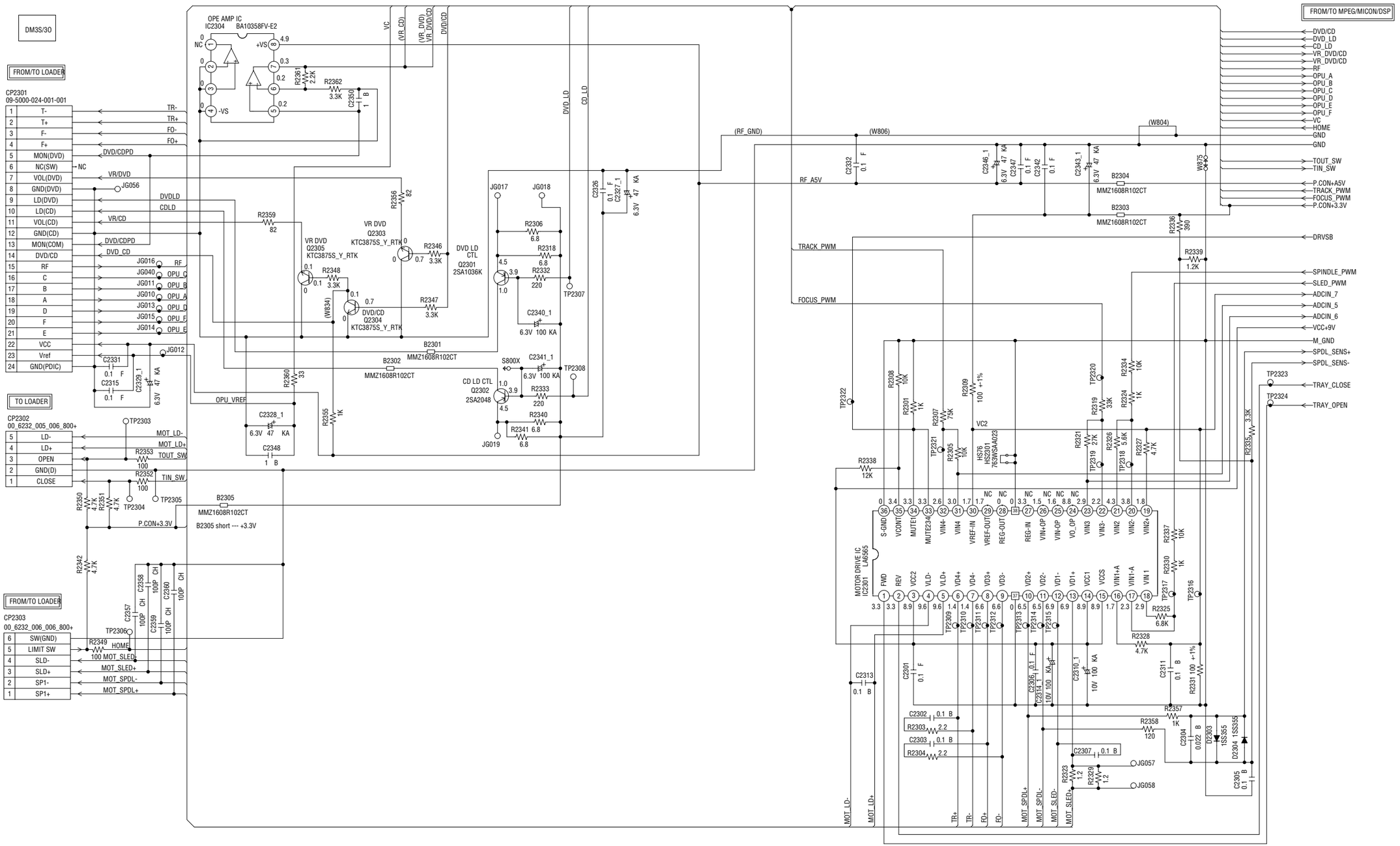


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

MOTOR DRIVE SCHEMATIC DIAGRAM

(DVD PCB)

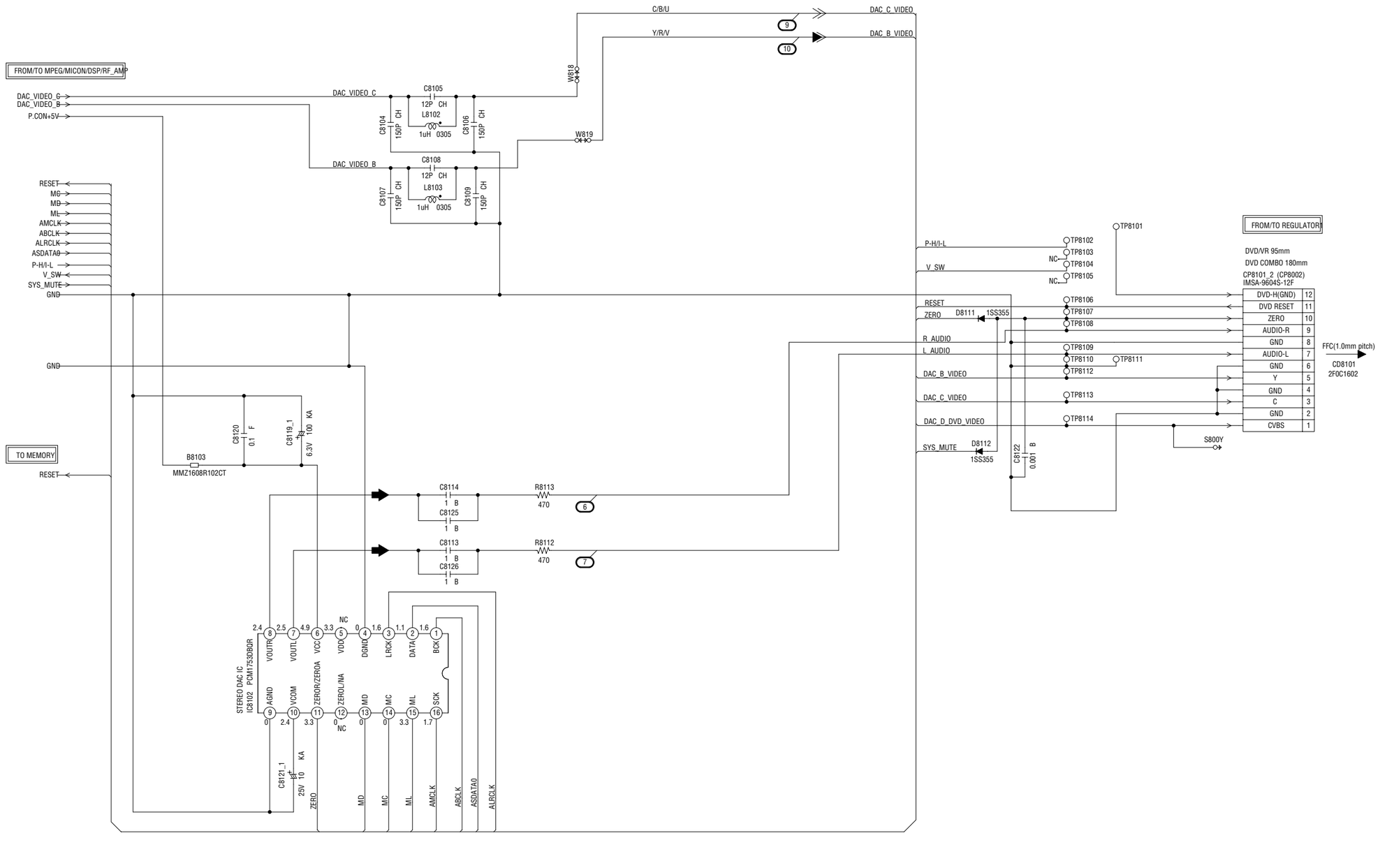


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

AUDIO/VIDEO SCHEMATIC DIAGRAM

(DVD PCB)



◀ R.SIGNAL+ COMPONENT SIGNAL(U)

≪ B.SIGNAL+ COMPONENT SIGNAL(V)

⬅ AUDIO SIGNAL(PB)

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

REGULATOR1 SCHEMATIC DIAGRAM

(AV PCB)

FROM POWER

GND
UNREG+12V
UNREG+8V
UNREG+5V
GND_A

L3000 10uH TSL0808

5V REG IC IC3001 KIA7805API
IN GND OUT
8.1 0 5.0

DRIVER Q3006 KTC3203_Y
7.9 8.0 10.8

W815
C3015_2 10V 100 YK
C3002_2 25V 10 KA
C3004 6.3V 220 YK

9V REG IC IC3005 KIA7809API
IN GND OUT
12.3 0 9.1

C3026_1 25V 10 KA
R3001 100 1/4W
R3020 470 1/4W
B3001 W9RH3.5X5X1.0
R3025 4.7 1W
R3019 18 1/4W
C3002 16V 470 YK
C3001_1 50V 100 YK
C3016 0.1 F
S802X
C3021 16V 470 YK

FROM/TO MPEG/MICON/DSP
CP8001 (CD4002) A2001WV2-11P

1	GND
2	GND
3	TX
4	RX
5	GND(M)
6	P.CON+9V
7	P.CON+5V
8	P.CON+3.8V
9	P.CON+3.8V
10	GND
11	SPDIF

W819 TX
W803 RX
C3006 470P CH
S803X
C3005 56P CH
C3008 470P CH
P.CON+5V_A
C3007 0.1 B
SPDIF-134

S001X
S001Y
W856

FROM/TO AUDIO/VIDEO
CP8002 (CP8101_2) IMSA-9604S-12Z14

12	CVBS
11	GND
10	C(CVBS)
9	GND
8	Y(G)
7	GND
6	AUDIO-L
5	GND
4	AUDIO-R
3	ZERO
2	DVD RESET
1	NC

W904
DVD_VIDEO
DVD_C
DVD_Y
DVD_A_OUT_L
DVD_A_OUT_R
ZERO
DVD_RESET
D3007 MTZJ5.6B
S803Y
CD8002 2H0C1001

DRIVER Q3000 KTA1281_Y
13.1 12.6
R3002 10K 1/4W
12.8
R3003 1K 1/4W
DRIVER 12.8 Q3001 KTC3875S_Y_RTK
0
W901 5.1
R3023 2.2K 1/4W

5V_REG IC IC3002 KIA7805API
IN GND OUT
8.1 0 4.9

DRIVER Q3010 KTC3209_Y
8.6 9.0 9.4

R3022 100 1/4W
C3003 50V 10 MHE
R3012 15 1/4W
R3011 220 1/4W
C3020_1 10V 100 YK
C3014_1 10V 100 YK

R3010 33 1/2W
11.9 9.0 9.6
DRIVER Q3005 KTC3209_Y

R3007 100 1/4W
C3023_2 25V 10 KA
C3030 16V 100 YK

8.5VREG

DRIVER Q3008 KTC3203_Y
8.0 5.0 3.6

R3009 100 1/4W
C3028_1 25V 10 KA
C3013_2 10V 100 YK
AT5.7VREG

D3006 11EQS04N
D3008 11EQS04N

8.0 8.0
DRIVER Q3009 KTA1281_Y
R3005 1M 7.2
R3021 1K
D3003 1SS133

R3006 120 1/2W
3.9 3.2 3.4
3.3V OUT Q3003 KTC4369
HS3001 763WAA0157

8.0 7.3
DRIVER Q3002 KTA1281_Y
0.6
R3008 10K
C3017 16V 220 YK
R3004 1K 1/4W
4.0 P.ON SW Q3007 KRC102SRTK 0
0

D3005 MTZJ4.3B
C3018 50V 1 YK
W878
C3025 6.3V 330 YK

P.CON+9V
P.CON+12V

TO SOUND AMP
GND
P.CON+9V
P.CON+12V
AT+5.6V

TO STEREO
P.CON+5V
GND
P.CON+12V

FROM/TO VIF/SIF/CHROMA
8.5VREG
AT5.7VREG
DVD_Y
DVD_C
P.CON+5V
P.CON+9V
GND
GND1

TO DEFLECTION
P.CON+5V
GND

FROM/TO MICON/TUNER
GND
POWER_ON_H
DVD_RESET
TX
RX
P.CON+5V
AT+5.6V
DVD_H

TO IN/OUT
P.CON+9V
AT+5.6V
P.CON+5V
P.CON+12V
P.CON+5V_A
SPDIF-134
DVD_A_OUT_L
DVD_A_OUT_R
ZERO
DVD_VIDEO
GND

PCB250
CME012

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

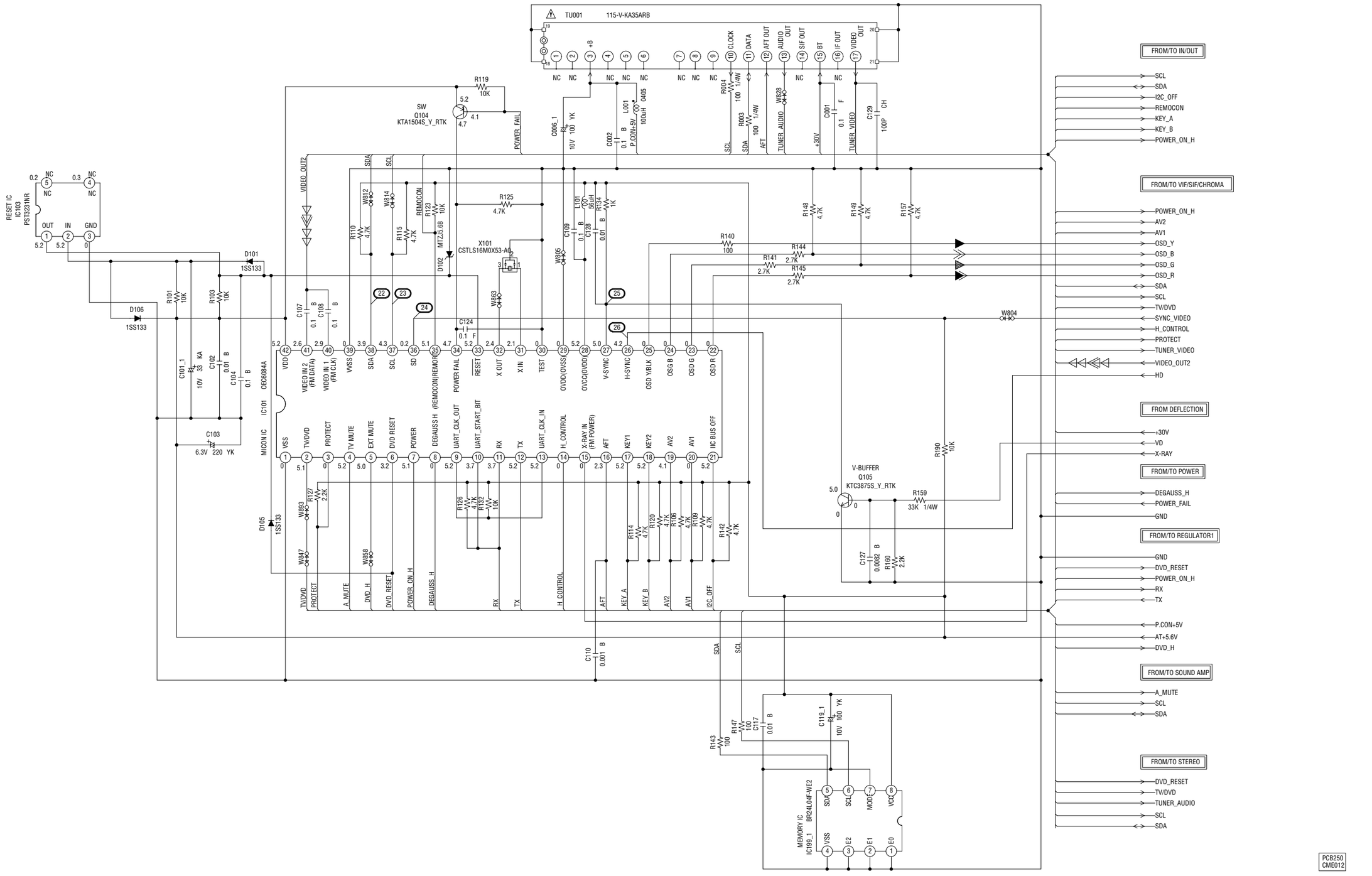
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR

DIGITAL AUDIO SIGNAL(PB)
AUDIO SIGNAL(PB)
PLAYBACK LUMINANCE SIGNAL
PLAYBACK COLOR SIGNAL

MICON /TUNER SCHEMATIC DIAGRAM

(AV PCB)



CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION :LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

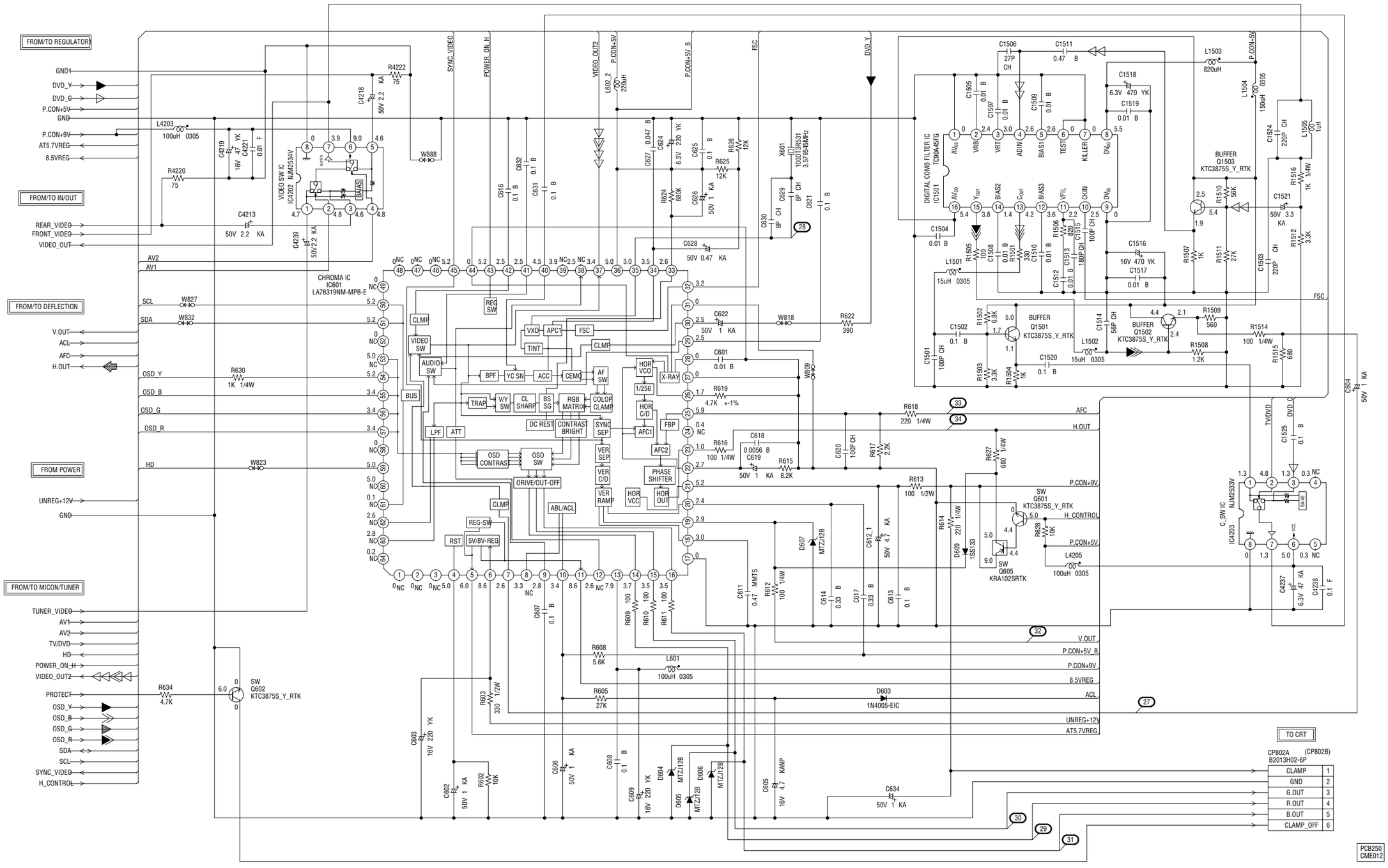
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

≪ B.SIGNAL
◀ G.SIGNAL
◀ R.SIGNAL

◁◁ TUNER VIDEO SIGNAL
◁◁ PLAYBACK VIDEO SIGNAL
◀ PLAYBACK LUMINANCE SIGNAL

VIF/SIF/CHROMA SCHEMATIC DIAGRAM

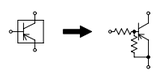
(AV PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: DIGITAL TRANSISTOR

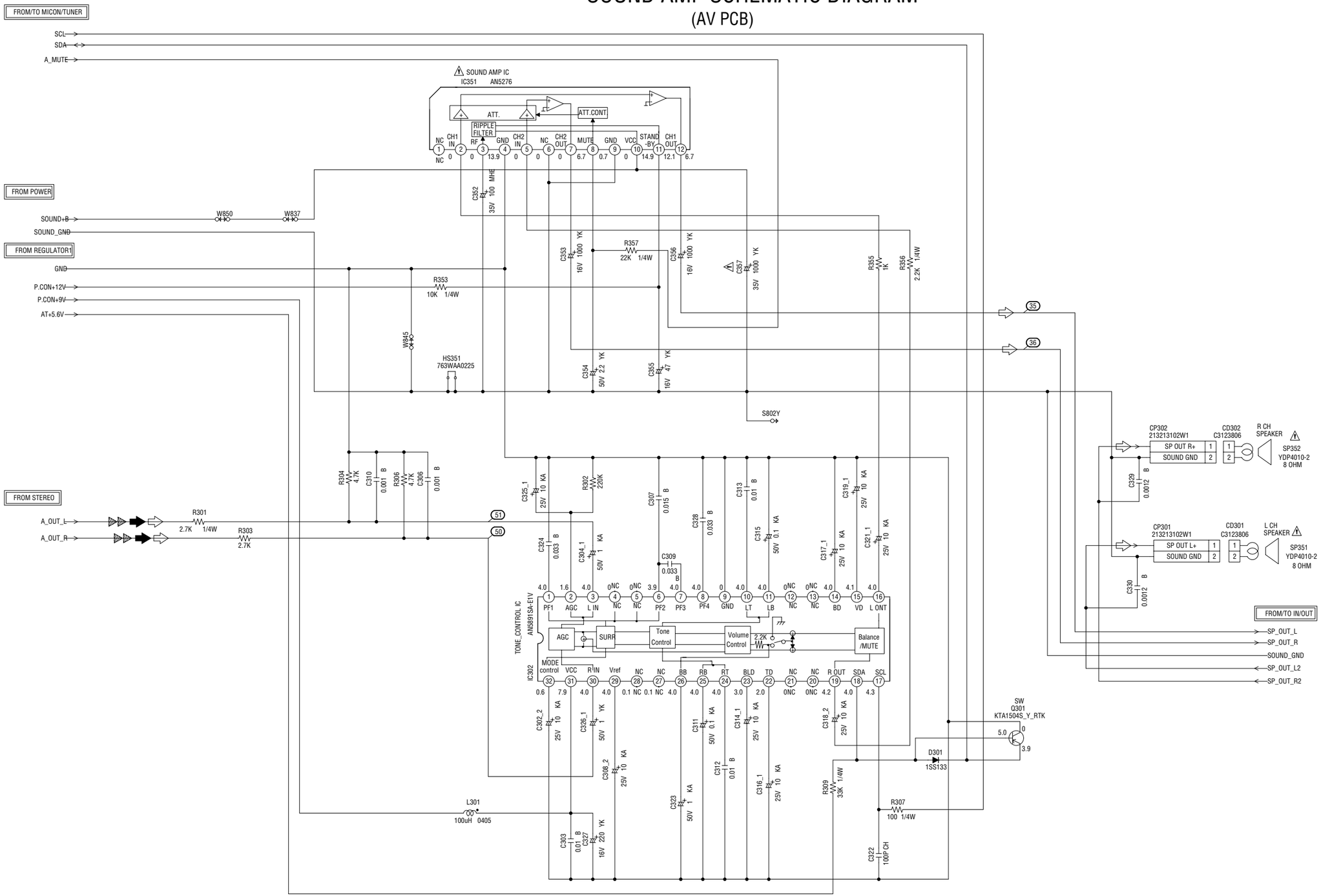


◀ PLAYBACK LUMINANCE SIGNAL
◁ PLAYBACK COLOR SIGNAL
≪ B.SIGNAL
◀ G.SIGNAL
◀ R.SIGNAL

◁◁ TUNER VIDEO SIGNAL
≪◁ PLAYBACK VIDEO SIGNAL
◀ DEFLECTION SIGNAL

SOUND AMP SCHEMATIC DIAGRAM

(AV PCB)



NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

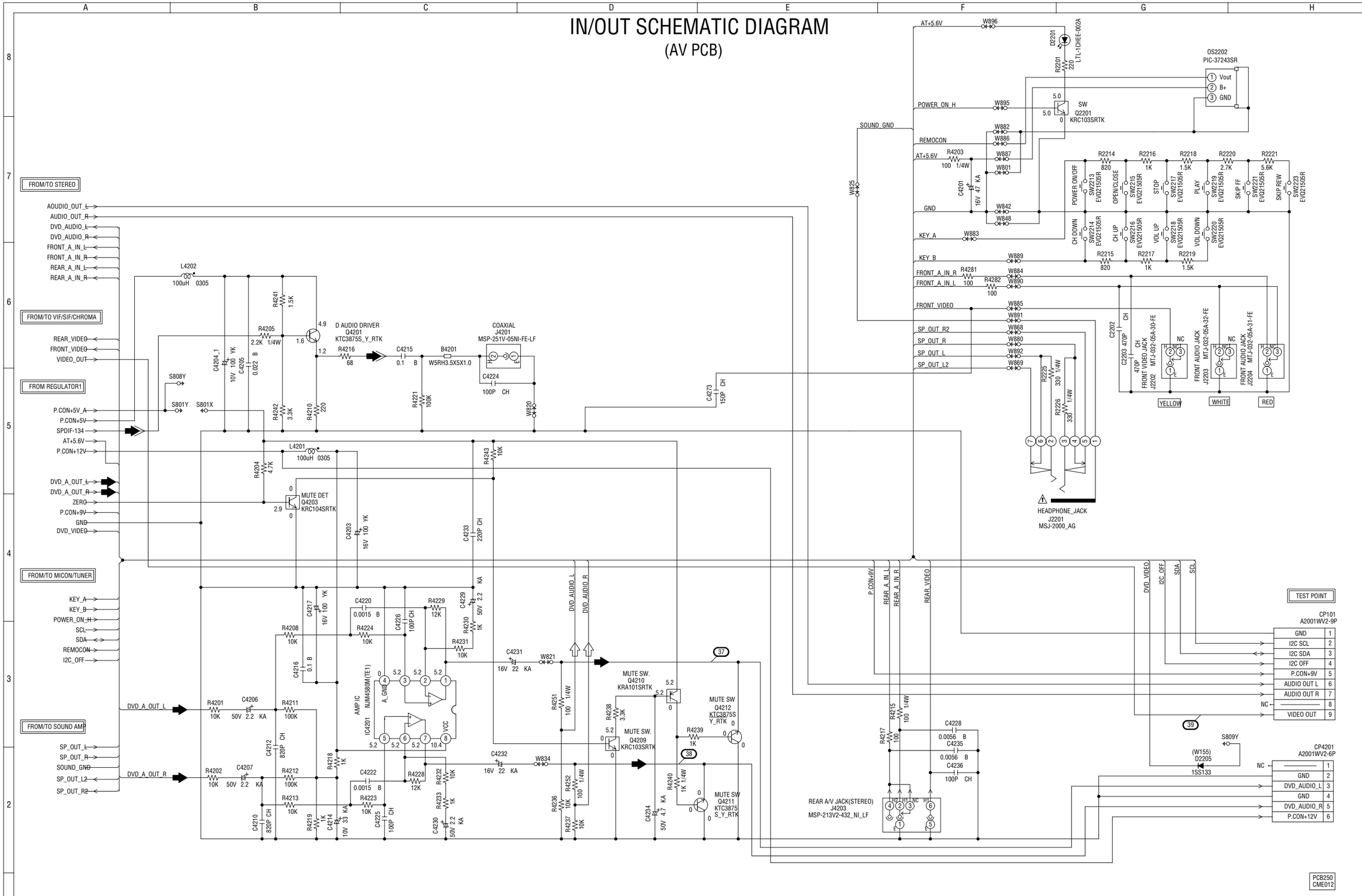
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION :LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

⇦ AUDIO SIGNAL
⬅ AUDIO SIGNAL(PB)
⇦⇦ TUNER AUDIO SIGNAL

IN/OUT SCHEMATIC DIAGRAM

(AV PCB)



CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

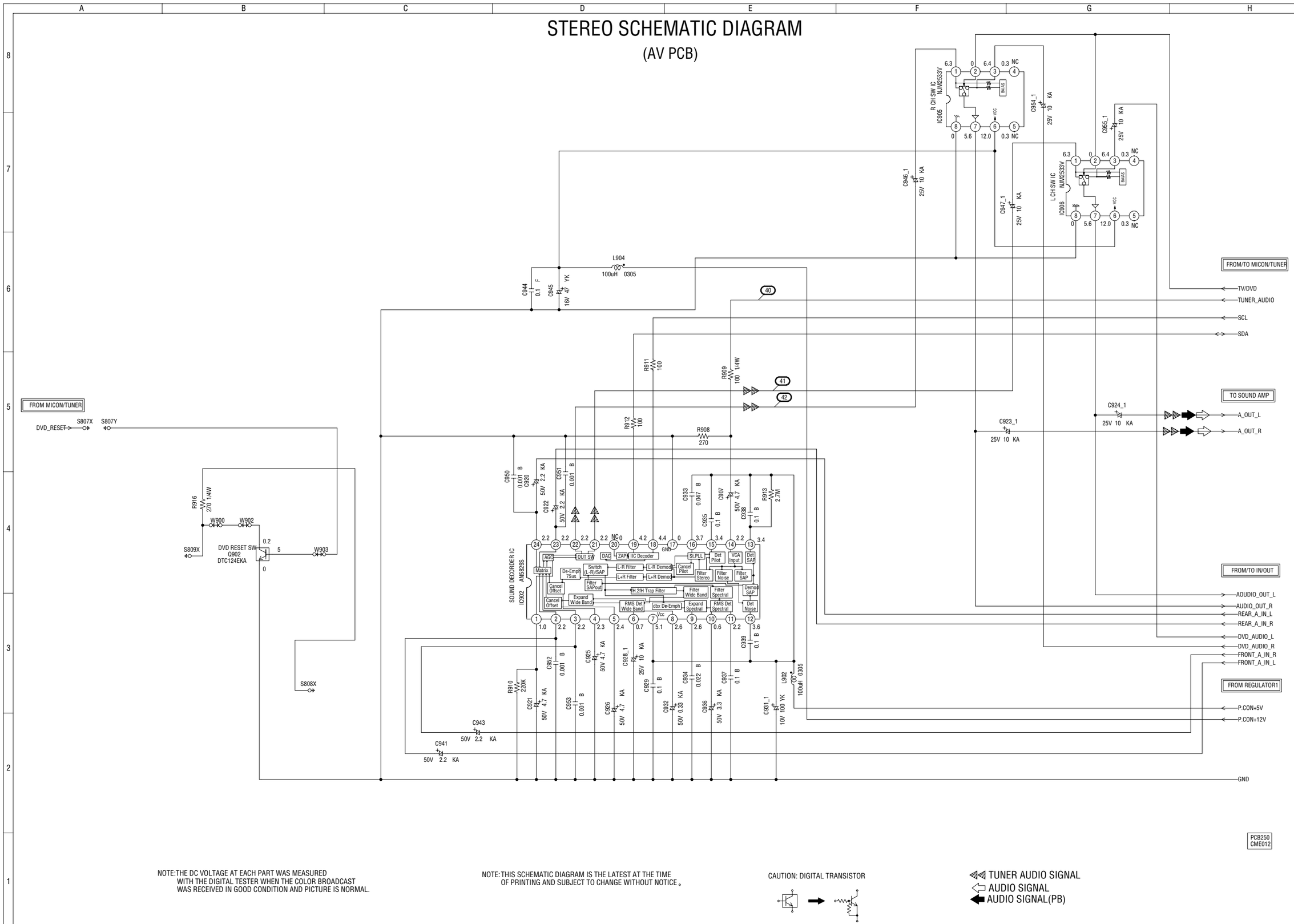
AUDIO SIGNAL

AUDIO SIGNAL(PB)

DIGITAL AUDIO SIGNAL(PB)

STEREO SCHEMATIC DIAGRAM

(AV PCB)



NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

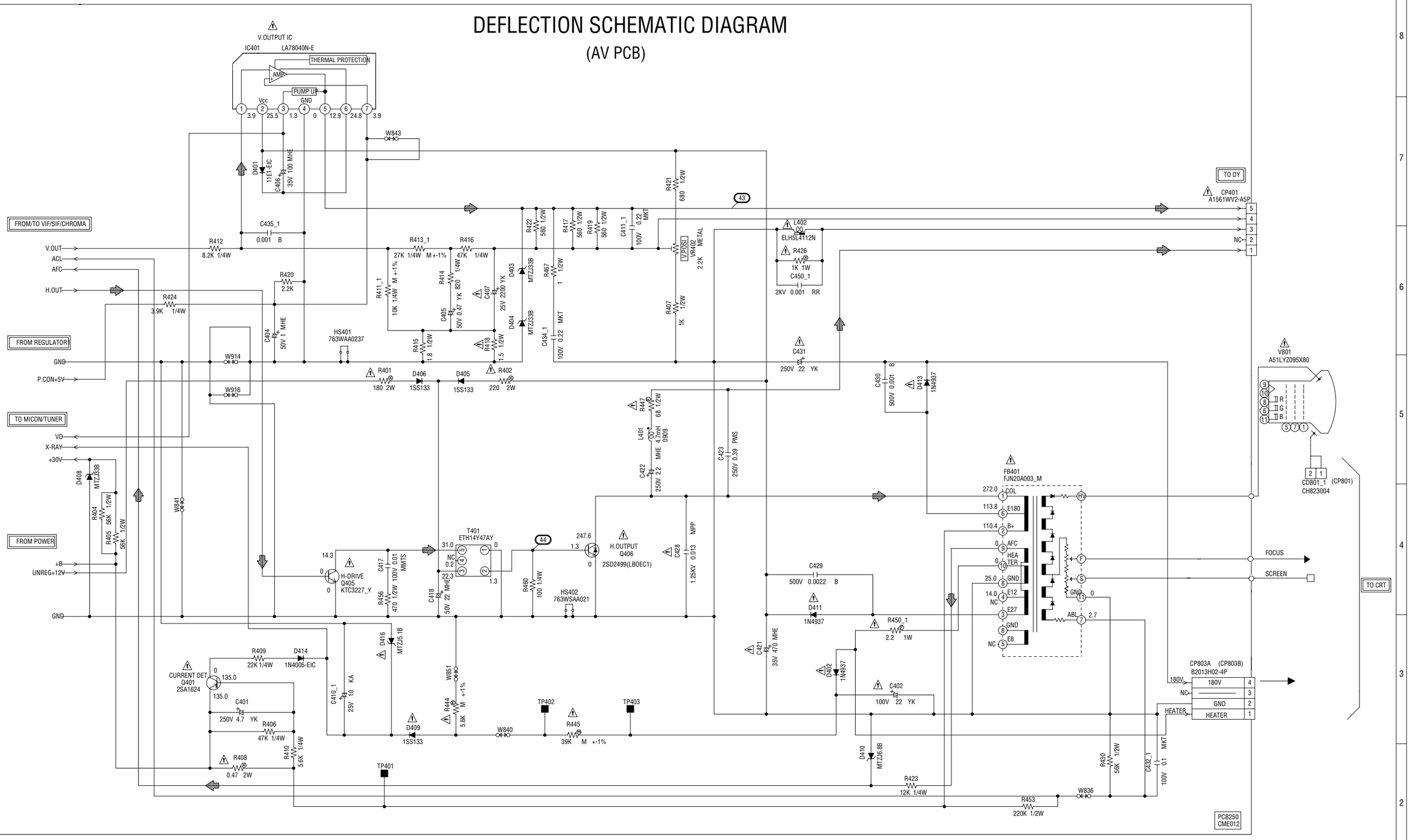
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: DIGITAL TRANSISTOR

TUNER AUDIO SIGNAL
AUDIO SIGNAL
AUDIO SIGNAL(PB)

DEFLECTION SCHEMATIC DIAGRAM

(AV PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

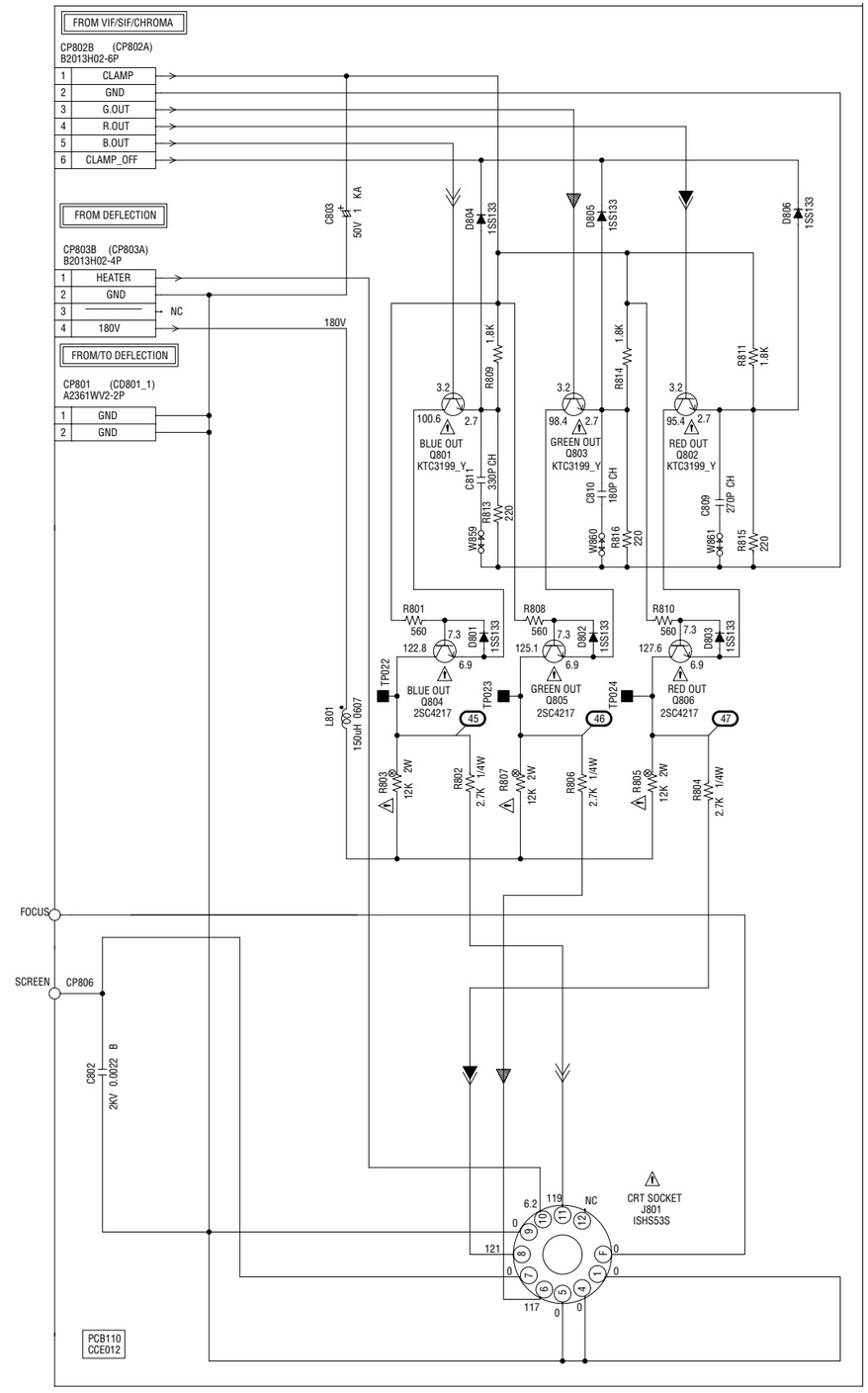
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

DEFLECTION SIGNAL

CRT SCHEMATIC DIAGRAM

(CRT PCB)



NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE:THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

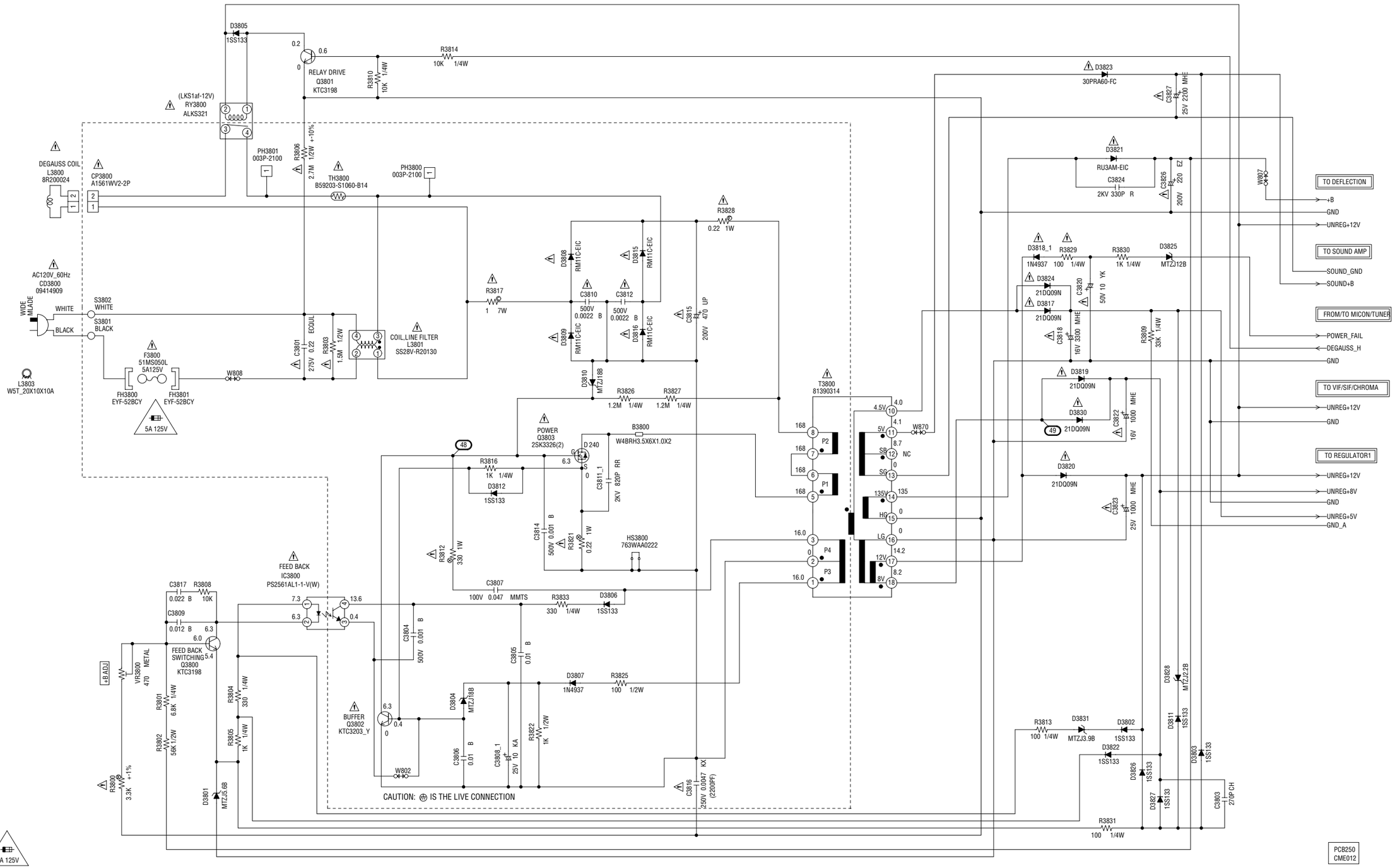
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION :LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL

POWER SCHEMATIC DIAGRAM

(AV PCB)



ATTENTION :POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 125V(F3800).

CAUTION :FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 5A 125V(F3800).

NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

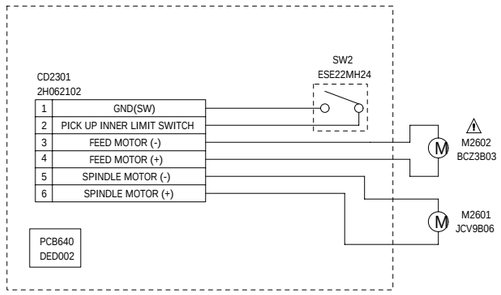
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY.USE ONES DESCRIBED IN PARTS LIST ONLY 。

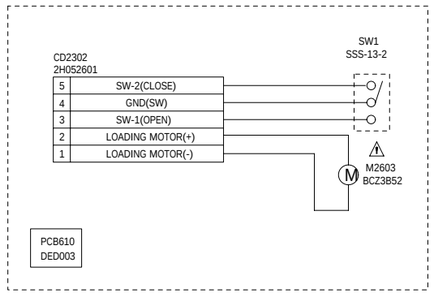
ATTENTION :LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

LOADING MOTOR/SW SCHEMATIC DIAGRAM

(SW PCB)

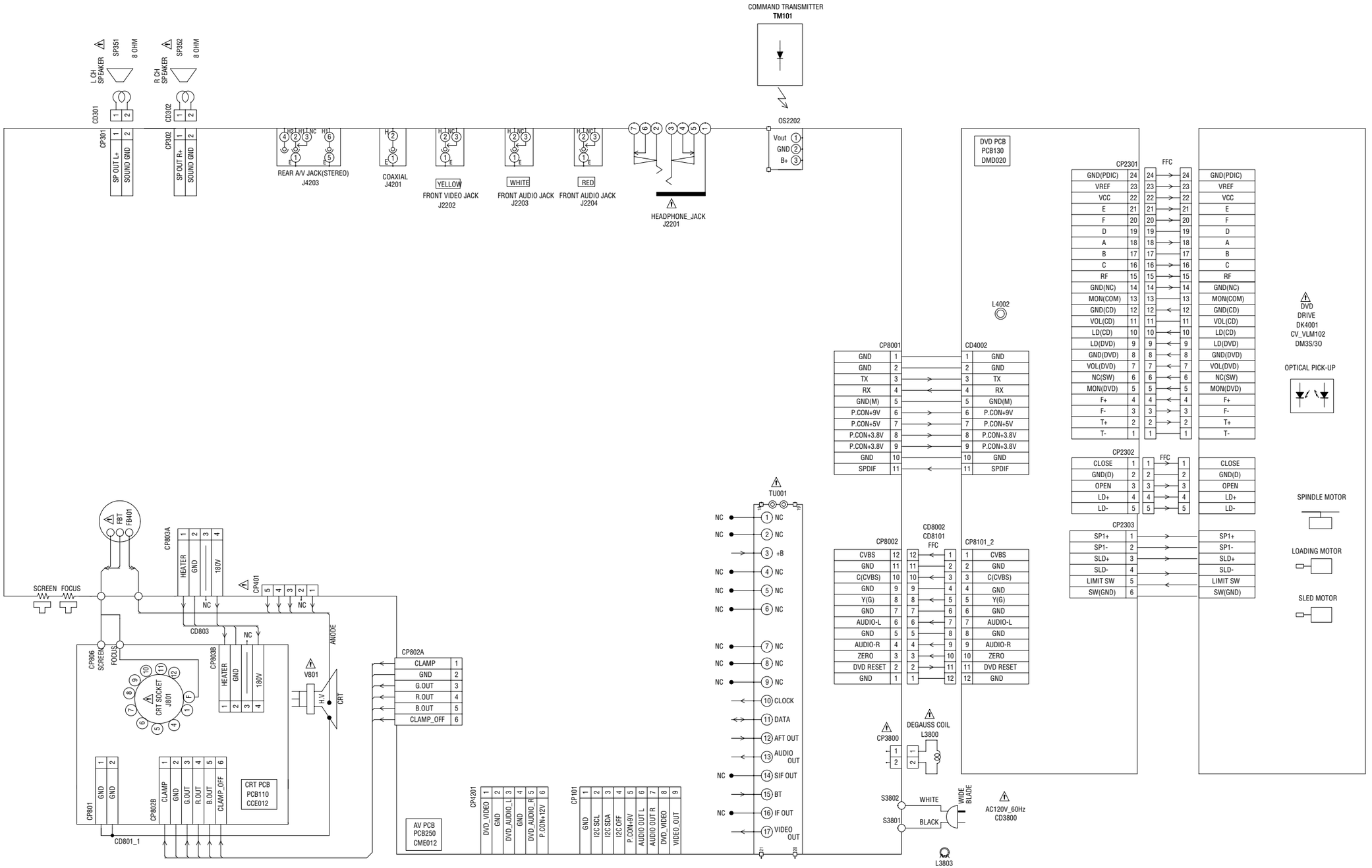


(LOADING MOTOR PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

INTERCONNECTION DIAGRAM



NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

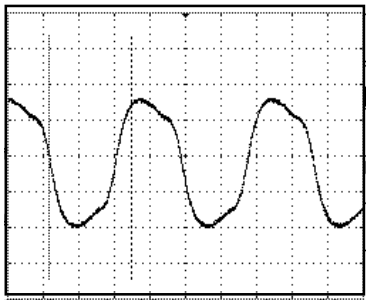
ATTENTION:LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

WAVEFORMS

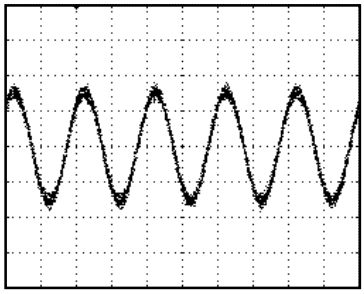
MPEG/MICON/DSP

10ns
100mV



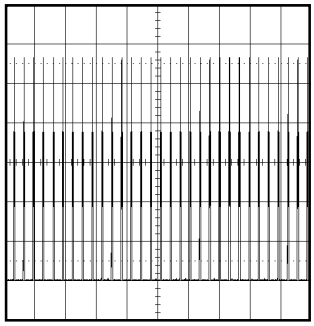
①

500µs
500mV



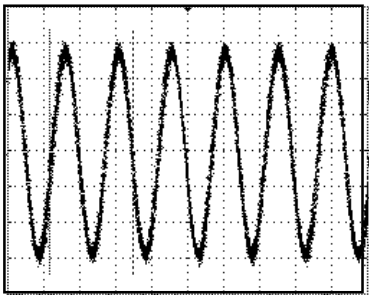
⑦

POWER ON
0.2ms
1.0V



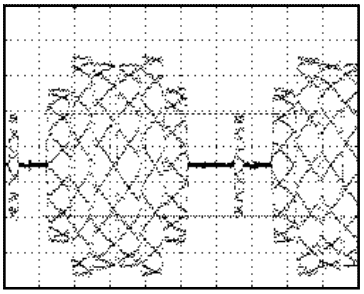
㉔

5ns
20mV



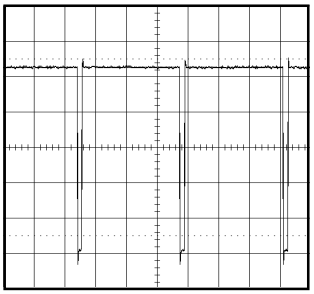
②

10µs
100mV



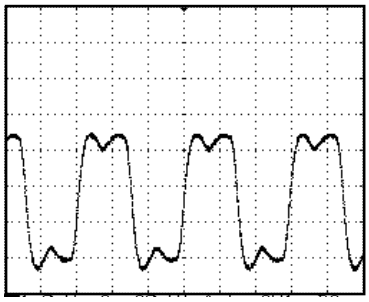
⑨

POWER ON
5ms
1.0V



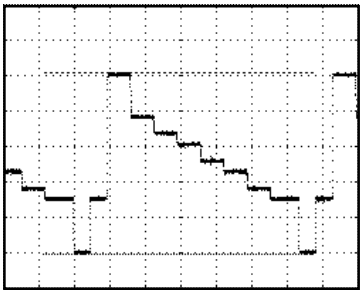
㉕

20ns
1.0V



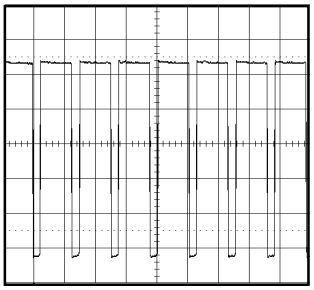
③

100µs
200mV



⑩

POWER ON
50µs
1.0V



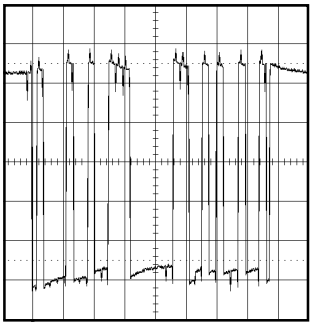
㉖

MICON/TUNER

200ns
1.0V

④

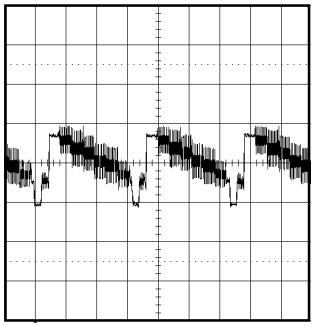
POWER ON
0.2ms
1.0V



㉒

VIF/SIF/CHROMA

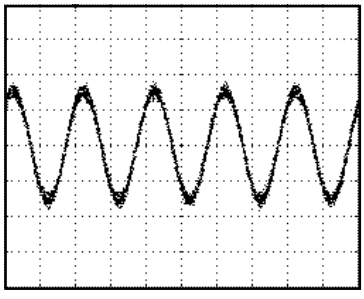
POWER ON
20µs
0.5V



㉗

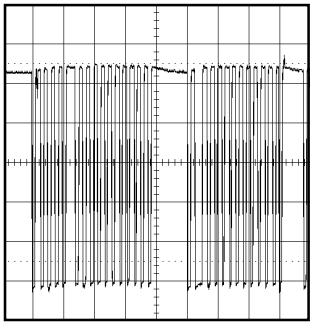
AUDIO/VIDEO

500µs
500mV



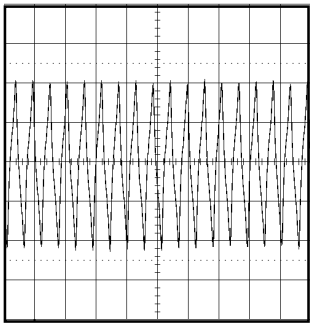
⑥

POWER ON
0.2ms
1.0V



㉓

STANDBY
0.5µs
50mV



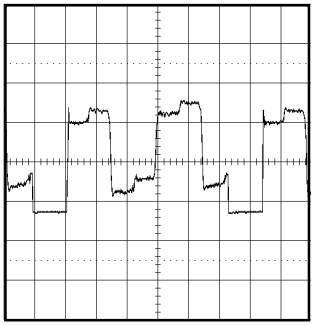
㉘

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

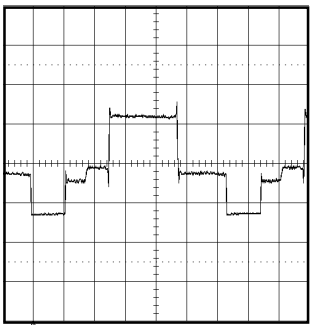
POWER ON
10µs
2.0V

29



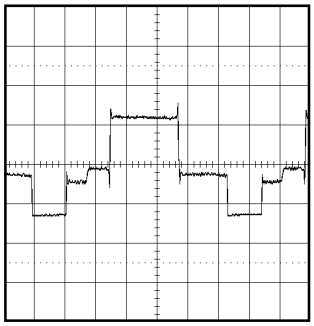
POWER ON
10µs
2.0V

30



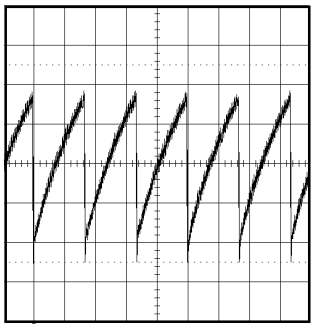
POWER ON
10µs
2.0V

31



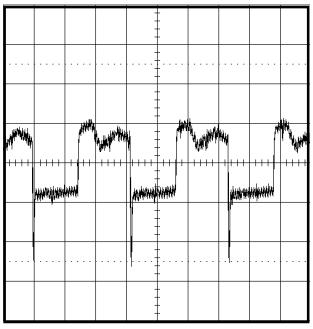
POWER ON
10ms
0.5V

32



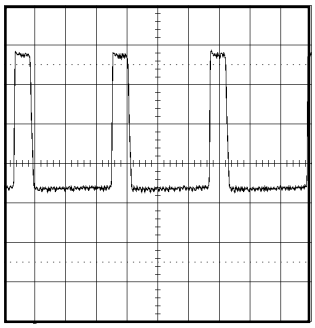
POWER ON
20µs
0.5V

33



POWER ON
20µs
2.0V

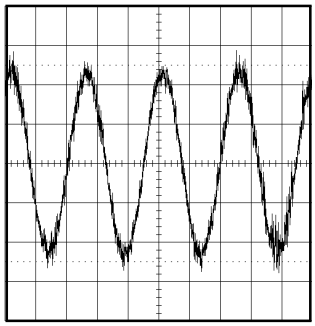
34



SOUND AMP

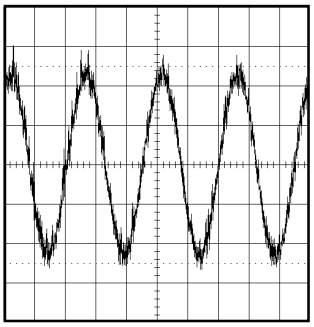
POWER ON
1ms
100mV

35



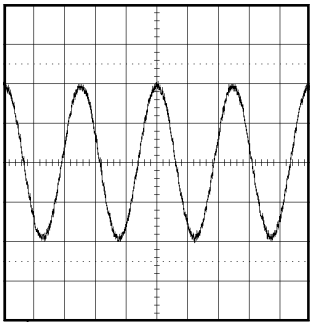
POWER ON
1ms
100mV

36



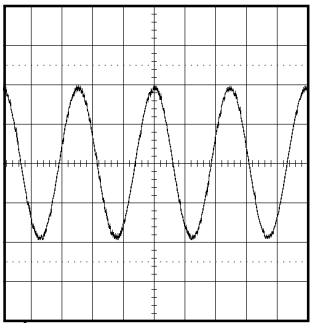
POWER ON
1ms
200mV

50



POWER ON
1ms
200mV

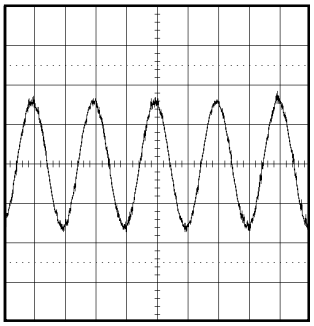
51



IN/OUT

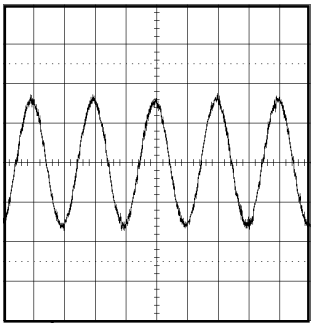
DVD PLAY
0.5ms
200mV

37



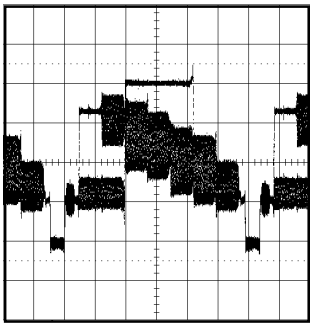
DVD PLAY
0.5ms
200mV

38



DVD PLAY
10µs
0.5V

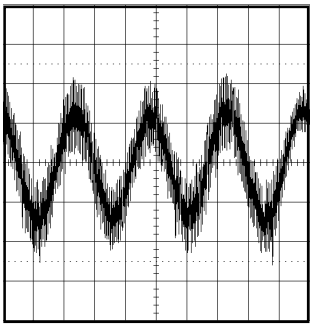
39



STEREO

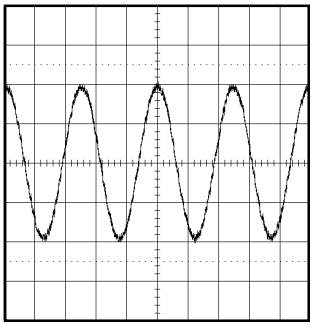
POWER ON
1ms
50mV

40



POWER ON
1ms
200mV

41

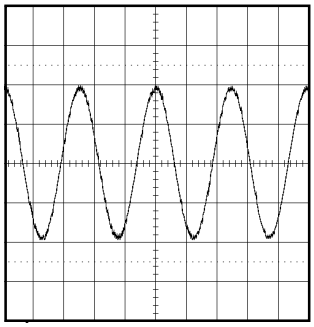


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

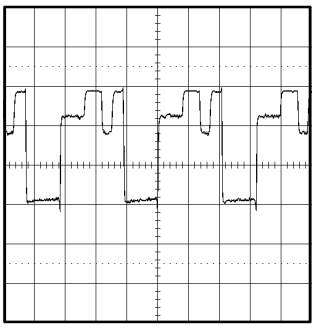
POWER ON
1ms
200mV

(42)



POWER ON
20µs
50V

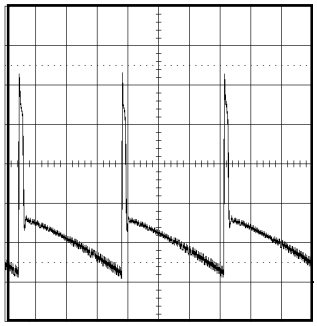
(47)



DEFLECTION

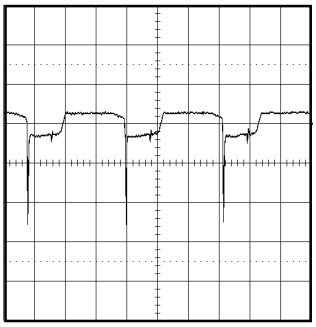
POWER ON
5ms
10.0V

(43)



POWER ON
20µs
5.0V

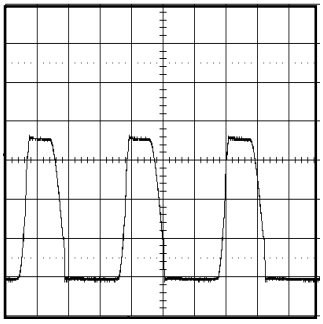
(44)



POWER

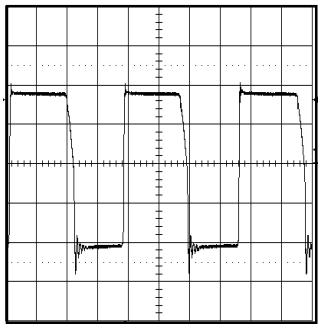
STANDBY
5µs
5.0V

(48)



STANDBY
5µs
5.0V

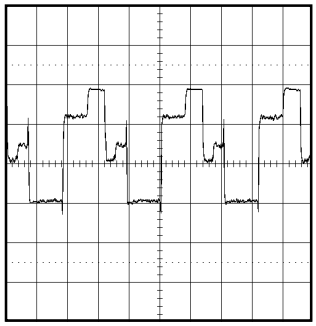
(49)



CRT

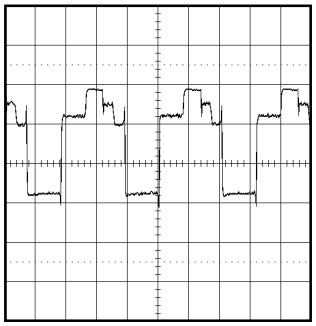
POWER ON
20µs
50V

(45)



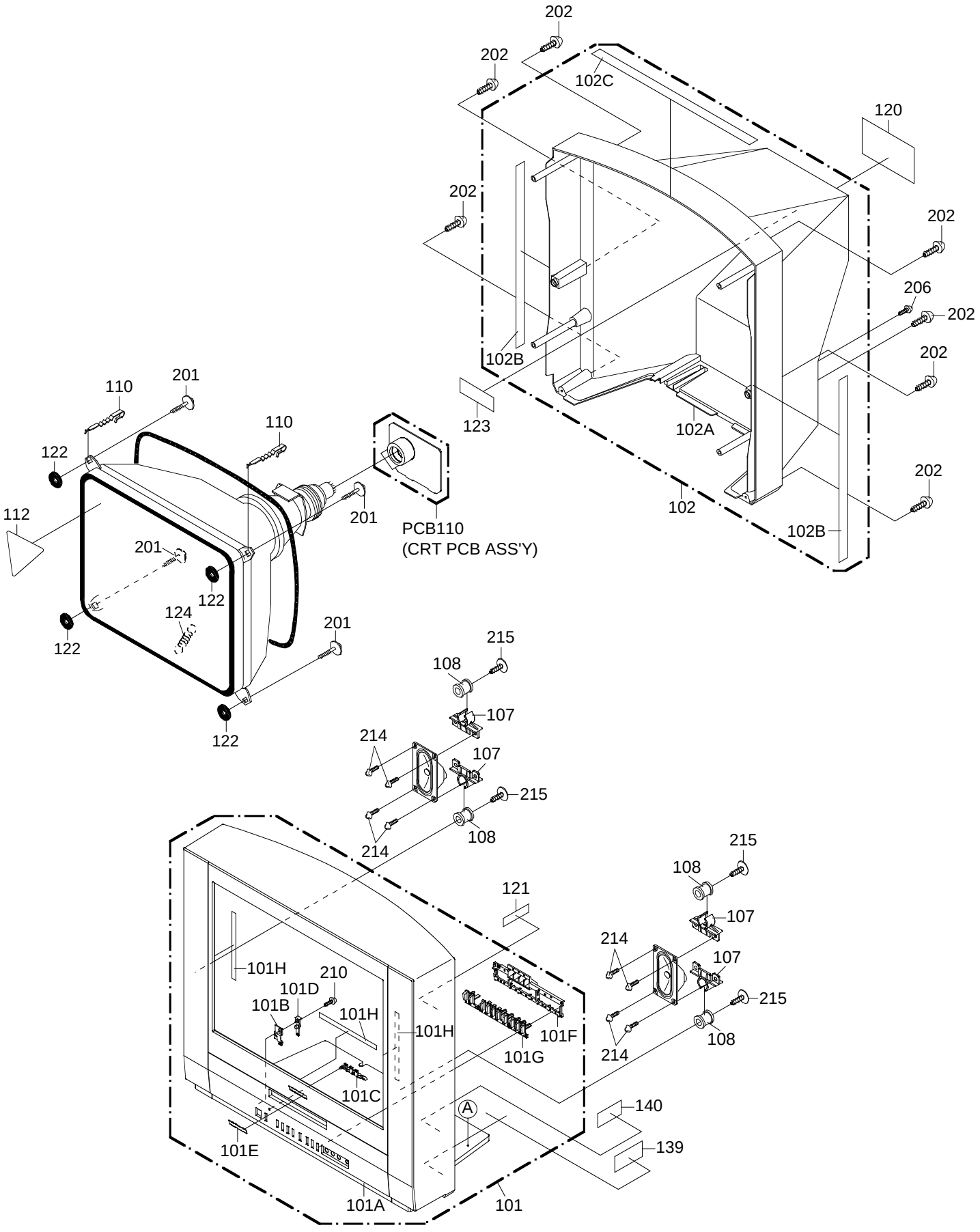
POWER ON
20µs
50V

(46)

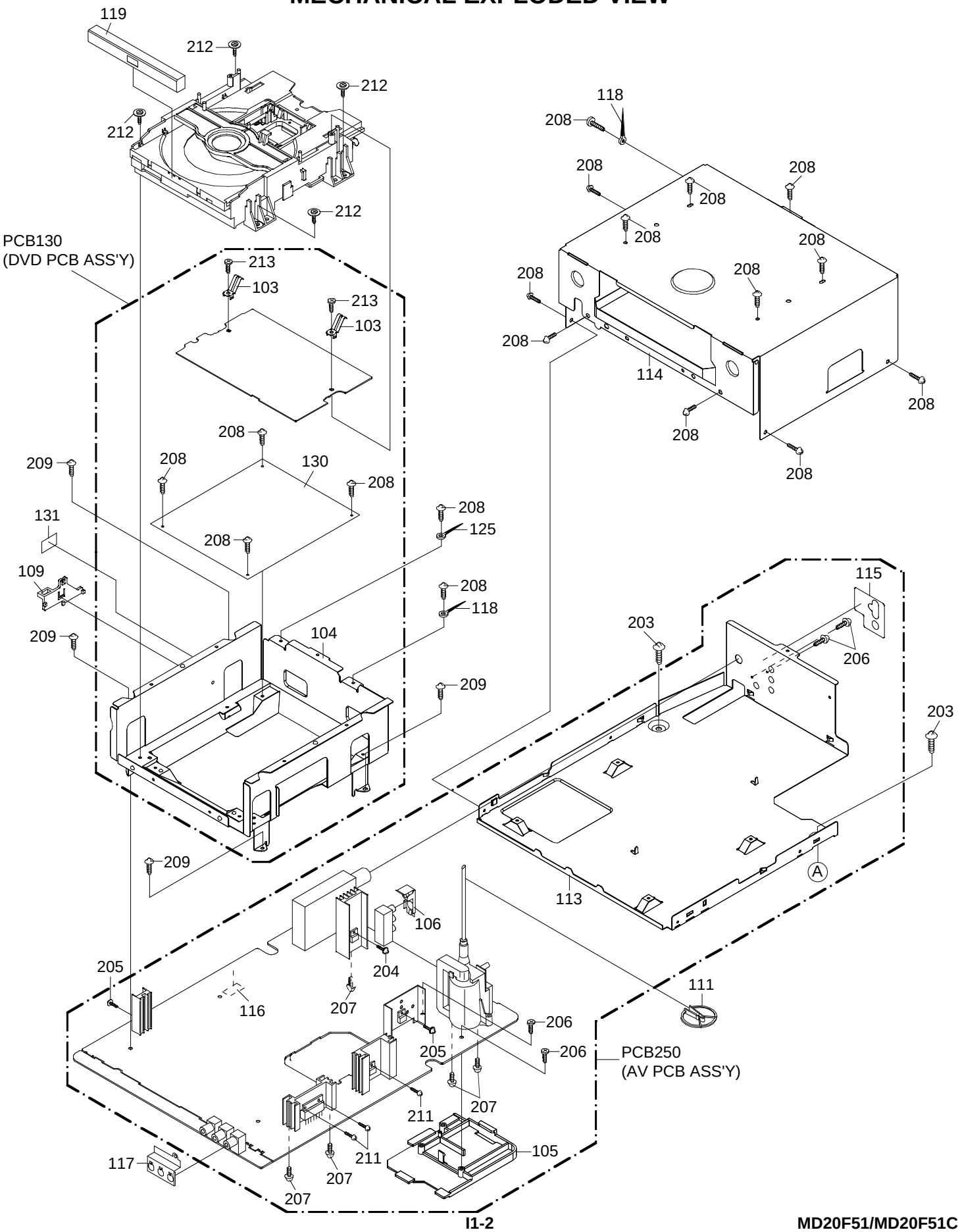


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

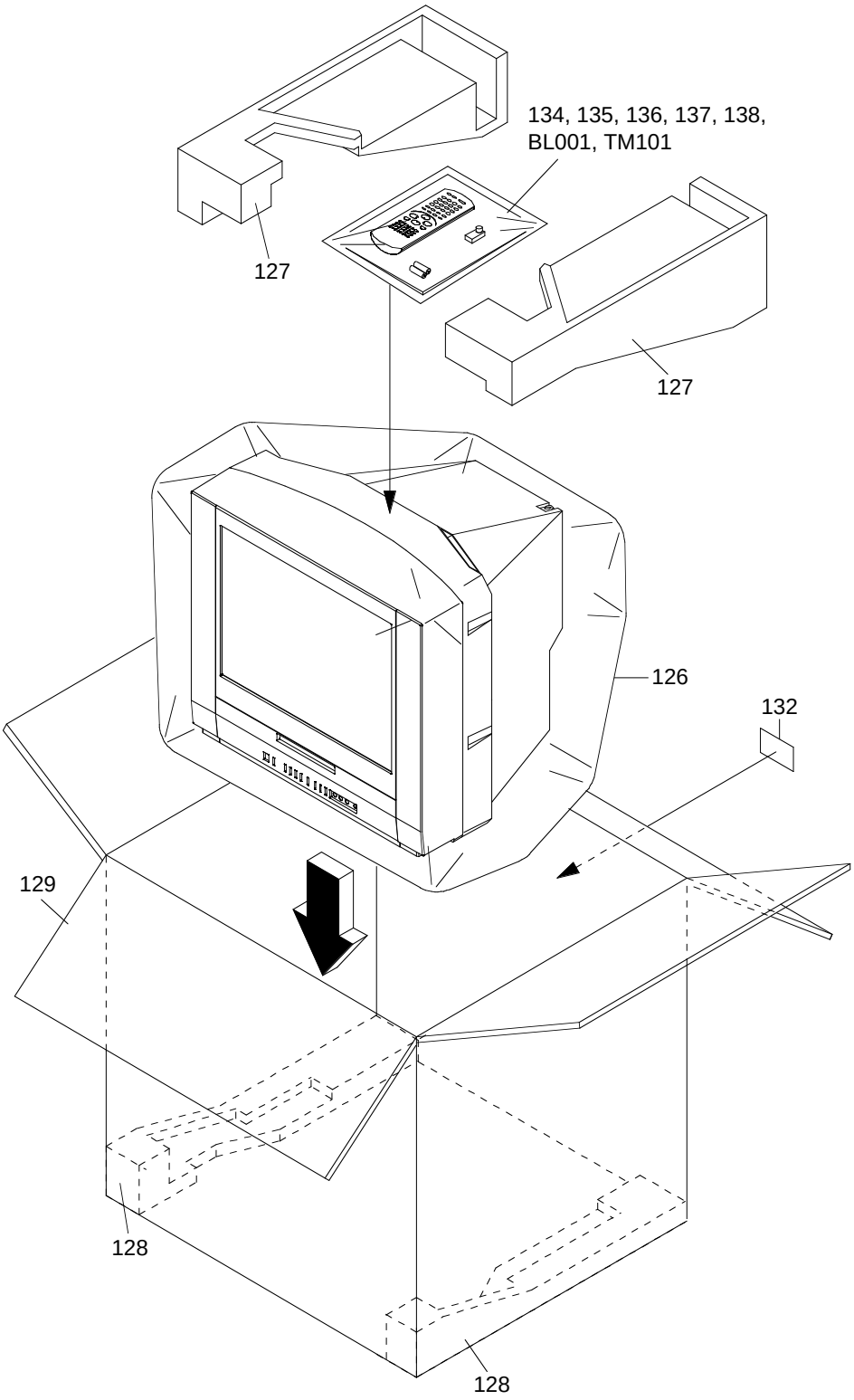
MECHANICAL EXPLODED VIEW



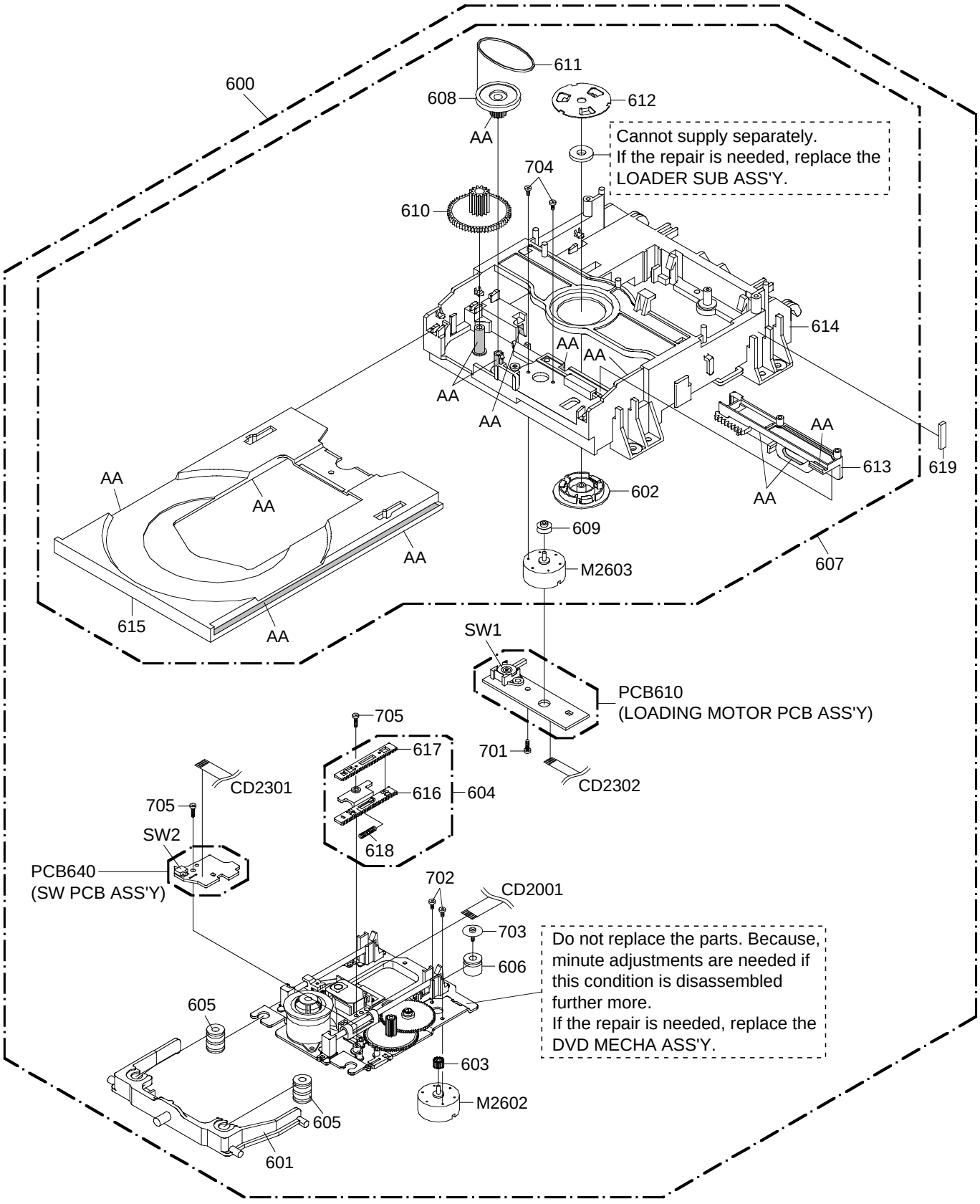
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW
(PACKING DIAGRAM)



DVD DECK EXPLODED VIEW



CLASS	MARK
GREASE	AA

NOTE: Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	AE006434	7A701A367A	FRONT CABI ASS'Y	
101A	AE006435	701WPJC977	CABINET,FRONT	
101B	AE006436	711WPAA123	PLATE,FRONT	
101C	AE006437	713WPAA191	GLASS,LED	
101D	AE006438	713WPAA190	GUIDE,REMOCON	
101E	AE004182	723549A040	BADGE,BRAND	
101F	AE006439	735WPAA806	STOPPER,BUTTON	
101G	AE006440	735WPBB365	BUTTON,FRAME	
101H	AE003110	800WQ0A052	FELT SHEET	
102	AE006441	7A702A099A	BACK CABI ASS'Y	
102A	AE006442	702WPAA822	CABINET,BACK	
102B	AE006443	800WQ0A109	FELT SHEET	
102C	AE006444	800WQ0A108	FELT SHEET	
103	AE004480	753WUA0069	SPRING,EARTH	
104	AE005250	761WSA0155	ANGLE,DECK	
105	BZ710699	761WPA0249	HOLDER,FBT	
106	BZ710659	752WSA0290	SHIELD,COMPO	
107	AE005207	761WPAA115	HOLDER,SPEAKER	
108	AD300518	801WR00001	DAMPER,SPEAKER	
109	AE003511	774WPA0006	HOLDER,WIRE	
110	BZ710259	762WPA0011	HOLDER,CRT WIRE	
111	BZ710260	899HV3T000	HOLDER,ANODE WIRE	
112	AE006464	723000C838	POP LABEL	
113	AE006446	702WSAA127	PLATE,BOTTOM	
114	AE005249	702WSA0213	SHIELD,TOP	
115	AD302048	7230007603	SHEET,JACK	
116	AE006447	724WNAA008	SHEET,PC	
117	AD302077	752WSA0333	SHIELD,JACK	
118	BZ710039	8995034000	CORD CLIP UL CO.	
119	AE002943	712WPJB972	PLATE,TRAY-FRONT	
120	AE006465	722549A429	SHEET,RATING	
121	AE005650	723000C727	SHEET,CAUTION	
122	AE002965	800WR0A010	SHEET,CRT SUPPORT (D)	
123	AE006449	726000A099	SHEET,CRT SERVICEMAN	
124	BZ710660	741WUA0021	SPRING,EARTH	
125	AD301370	899EFBA002	WIRING-CLIP	
126	AE005914	791WHAA114	FILM BAG	
127	AD302056	792WHA0422	PACKAGE,TOP	
128	AD302057	792WHA0423	PACKAGE,BOTTOM	
129	AE006466	793WCDC629	GIFT BOX	
130	AE006188	752WSA0488	SHIELD,DECK	
131	AE006189	753WEA0018	SHEET,CU	
132	AE006467	723000C834	SHEET,BAR CODE	
133	AE006468	A5S101U975	INSTRUCTION BOOK KIT	
134	AE005985	JB5KD400	POLYBAG,INSTRUCTION(RED CAUTION)	
135	AE004983	J2D60117A	REGISTRATION CARD	
136	AE004982	J2D60129A	INFORMATION SHEET	
137	AE004980	J2D60143A	NETFLIX CARD	
138	AE006469	J5S10101A	INSTRUCTION BOOK	
201	AE005916	8141J50C5U	SCREW,TAP TITE(P) GW22	5x35
202	AE004847	8117540A6U	SCREW,TAP TITE(B0) TRUSS	4x16
203	AE003523	811754080U	SCREW,TAP TITE(B0) TRUSS	4x8
204	AE003524	8109I30A0U	SCREW,TAP TITE(B) WH7	3x10
205	AE005659	8109I3080U	SCREW,TAP TITE(B) WH7	3x8
206	AE003526	810923080U	SCREW,TAP TITE(B) BIND	3x8
207	AE005917	810963080Q	SCREW,TAP TITE(B) BRAZIER	3x8
208	AE005675	810923060U	SCREW,TAP TITE(B) BIND	3x6
209	AE005474	810923070U	SCREW,TAP TITE(B) R BIND	3x7
210	AE003528	8110630A0U	SCREW,TAP TITE(P) BRAZIER	3x10
211	AE003531	810763080U	SCREW,TAP TITE(S) BRAZIER	3x8
212	AE005541	810F13080U	SEMS(F)	3x8
213	AE003530	811022680U	SCREW,TAP TITE(P) BIND	2.6x8
214	AE003529	811063080U	SCREW,TAP TITE(P) BRAZIER	3x8
215	AE005398	8162540A6U	SCREW,TAPPING (BO) WASHER 18	

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	AE006434	7A701A367A	FRONT CABI ASS'Y	
101A	AE006435	701WPJC977	CABINET,FRONT	
101B	AE006436	711WPAA123	PLATE,FRONT	
101C	AE006437	713WPAA191	GLASS,LED	
101D	AE006438	713WPAA190	GUIDE,REMOCON	
101E	AE004182	723549A040	BADGE,BRAND	
101F	AE006439	735WPAA806	STOPPER,BUTTON	
101G	AE006440	735WPBB365	BUTTON,FRAME	
101H	AE003110	800WQ0A052	FELT SHEET	
102	AE006441	7A702A099A	BACK CABI ASS'Y	
102A	AE006442	702WPAA822	CABINET,BACK	
102B	AE006443	800WQ0A109	FELT SHEET	
102C	AE006444	800WQ0A108	FELT SHEET	
103	AE004480	753WUA0069	SPRING,EARTH	
104	AE005250	761WSA0155	ANGLE,DECK	
105	BZ710699	761WPA0249	HOLDER,FBT	
106	BZ710659	752WSA0290	SHIELD,COMPO	
107	AE005207	761WPAA115	HOLDER,SPEAKER	
108	AD300518	801WR00001	DAMPER,SPEAKER	
109	AE003511	774WPA0006	HOLDER,WIRE	
110	BZ710259	762WPA0011	HOLDER,CRT WIRE	
111	BZ710260	899HV3T000	HOLDER,ANODE WIRE	
112	AE006470	723000C842	POP LABEL	
113	AE006446	702WSAA127	PLATE,BOTTOM	
114	AE005249	702WSA0213	SHIELD,TOP	
115	AD302048	7230007603	SHEET,JACK	
116	AE006447	724WNAA008	SHEET,PC	
117	AD302077	752WSA0333	SHIELD,JACK	
118	BZ710039	8995034000	CORD CLIP UL CO.	
119	AE002943	712WPJB972	PLATE,TRAY-FRONT	
120	AE006471	722549A432	SHEET,RATING	
121	AE006290	723000C728	SHEET,CAUTION	
122	AE002965	800WR0A010	SHEET,CRT SUPPORT (D)	
123	AE006449	726000A099	SHEET,CRT SERVICEMAN	
124	BZ710660	741WUA0021	SPRING,EARTH	
125	AD301370	899EFBA002	WIRING-CLIP	
126	AE005914	791WHAA114	FILM BAG	
127	AD302056	792WHA0422	PACKAGE,TOP	
128	AD302057	792WHA0423	PACKAGE,BOTTOM	
129	AE006472	793WCDC634	GIFT BOX	
130	AE006188	752WSA0488	SHIELD,DECK	
131	AE006189	753WEA0018	SHEET,CU	
132	AE006473	723000C841	SHEET,BAR CODE	
133	AE006474	A5S103U975	INSTRUCTION BOOK KIT	
134	AE005715	JB5KD200	POLYBAG,INSTRUCTION(RED CAUTION)	
136	AE005543	J2E50729A	INFORMATION SHEET	
138	AE007203	J5S10321A	INSTRUCTION BOOK(E/F)	
139	AE006166	722000A267	SHEET,CSA WARNING	
140	AE006242	722000A266	SHEET,HWC	
201	AE005916	8141J50C5U	SCREW,TAP TITE(P) GW22	5x35
202	AE004847	8117540A6U	SCREW,TAP TITE(B0) TRUSS	4x16
203	AE003523	811754080U	SCREW,TAP TITE(B0) TRUSS	4x8
204	AE003524	8109I30A0U	SCREW,TAP TITE(B) WH7	3x10
205	AE005659	8109I3080U	SCREW,TAP TITE(B) WH7	3x8
206	AE003526	810923080U	SCREW,TAP TITE(B) BIND	3x8
207	AE005917	810963080Q	SCREW,TAP TITE(B) BRAZIER	3x8
208	AE005675	810923060U	SCREW,TAP TITE(B) BIND	3x6
209	AE005474	810923070U	SCREW,TAP TITE(B) R BIND	3x7
210	AE003528	8110630A0U	SCREW,TAP TITE(P) BRAZIER	3x10
211	AE003531	810763080U	SCREW,TAP TITE(S) BRAZIER	3x8
212	AE005541	810F13080U	SEMS(F)	3x8
213	AE003530	811022680U	SCREW,TAP TITE(P) BIND	2.6x8
214	AE003529	811063080U	SCREW,TAP TITE(P) BRAZIER	3x8
215	AE005398	8162540A6U	SCREW,TAPPING (BO) WASHER 18	

DVD DECK REPLACEMENT PARTS LIST

	Location No.	TSB P/N	Reference No.	Description	
⚠	600	AE005942	A5R801V650	DVD MECHA ASS'Y	A5R801V650
	601	AE005003	92P100109A	HOLDER,TRAVERSE	
	602	AE003550	92P100094A	CLAMPER	
	603	AE003551	92P100088A	GEAR,MOTOR	
	604	AE003537	92AAA0013A	FEED RACK ASS'Y	
	605	AE003538	92P200013A	INSULATOR(F)	
	606	AE003539	92P200014A	INSULATOR(R)	
	607	AE005929	92SBB0030A	LOADER SUB ASS'Y	
	608	AE003541	92P100095A	GEAR,PULLEY	
	609	AE003542	92P100097A	PULLEY,MOTOR	
	610	AE003549	92P100096A	GEAR,MAIN	
	611	AE003544	92P200012A	BELT,LOADING	
	612	AE003545	92P000014A	PLATE,CLAMPER	
	613	AE003546	92P100093A	RACK,LOADING	
	614	AE003547	92P100091A	FRAME,MAIN	
	615	AE004280	92P100100A	TRAY	
	616	AE003535	92P100089A	RACK,FEED 1	
	617	AE003536	92P100090A	RACK,FEED 2	
	618	AE003543	92P300020A	SPRING,RACK FEED	
	619	BZ710149	800WFAA008	CUSHION C	
	701	AE003530	811022680U	SCREW,TAP TITE(P) BIND	2.6x8
	702	AE003554	814011723U	SCREW,PAN	M1.7x2.3 P3
	703	AE003555	816112080U	SEMS.TAP TITE(P) PAN W10	2x8
	704	AE003556	814011730U	SCREW,PAN	M1.7x3 P3
	705	AE003557	811022080U	SCREW,TAP TITE(P) BIND	2x8
	CD2001	AD301855	122H0O1901	CORD JUMPER	2H0O1901
	CD2301	AE003558	122H062102	CORD JUMPER	2H062102
	CD2302	AE003559	122H052601	CORD JUMPER	2H052601
⚠	M2602	AE005930	1515S98003	FEED MOTOR	BCZ3B03B
⚠	M2603	AE005931	1596S18003	MOTOR,LOADING	BCZ3B52B
	PCB610	AE005932	A5R801V610	PCB ASS'Y	DED003A
	PCB640	AE005933	A5R801V640	PCB ASS'Y	DED002B
	SW1	AE003564	0515S32002	SWITCH	SSS-13-2
	SW2	AE003565	0500101037	PUSH SWITCH	ESE22MH24

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
⚠R401	AD302023	R3X28A181J	R,METAL	180 OHM 2W
⚠R402	BZ210262	R3X28A221J	R,METAL OXIDE	220 OHM 2W
⚠R408	BZ210285	R3X28AR47J	R,METAL OXIDE	0.47 OHM 2W
⚠R418	BZ210130	R002T21R5J	RC	1.5 OHM 1/2W
⚠R426	BZ210003	R3K181102J	R,METAL OXIDE	1K OHM 1W
⚠R444	BZ210244	R4X5T6562F	R,METAL	5.6K OHM 1/6W
⚠R445	AD301011	R4X5T6393F	R,METAL	39K OHM 1/6W
⚠R447	AE006221	R638U2680J	R,FUSE	68 OHM 1/2W
⚠R450	AE006460	R638812R2J	R,FUSE	2.2 OHM 1W
⚠R803	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠R805	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠R807	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
R3025	BZ210204	R3X1814R7J	R,METAL OXIDE	4.7 OHM 1W
⚠R3800	BZ210230	R4X5T6332F	R,METAL	3.3K OHM 1/6W
⚠R3803	BZ210206	R002T2155J	RC	1.5M OHM 1/2W
⚠R3806	BZ210080	R0G3K2275K	RC	2.7M OHM 1/2W
⚠R3812	BZ210217	R3X181331J	R,METAL OXIDE	330 OHM 1W
⚠R3817	BZ210117	R5X2CE010J	R,CEMENT	1 OHM 7W
⚠R3821	BZ210063	R3X181R22J	R,METAL OXIDE	0.22 OHM 1W
⚠R3828	AE005735	R63881R22J	R,FUSE	0.22 OHM 1W
⚠R3829	AD301203	R002T4101J	RC	100 OHM 1/4W
		CAPACITORS		
⚠C357	AD300067	E02LF4102M	CE	1000 UF 35V
⚠C402	AD300064	E02LT8220M	CE	22 UF 100V
⚠C407	BZ210176	E02LF3222M	CE	2200 UF 25V
⚠C421	BZ110065	E5EZT4471M	CE	470 UF 35V
C423	BZ110136	P4J7F3394J	CMPP	0.39 UF 250V PMS
⚠C428	AD301978	P4N8FJ133H	CMPP	0.013 UF 1.25KV
⚠C431	BZ110204	E0ELFD220M	CE	22 UF 250V
C450	BZ110202	C0PLRR713K	CC	0.001 UF 2KV R
C802	BZ110226	C0JBB07H3K	CC	0.0022UF 2KV B
C1525	BZ110254	CQG0B0415K	CC	0.1 UF 50V B
⚠C3801	BZ110025	P2122B224M	CMP	0.22 UF 275V ECQUL
⚠C3810	AE001347	C0J0B05H3K	CC	0.0022UF 500V B
C3811	BZ110203	C0PLRR7W2K	CC	820 PF 2KV RR
⚠C3812	AE001347	C0J0B05H3K	CC	0.0022UF 500V B
⚠C3815	BZ110012	E51CGC471M	CE	470 UF 200V
⚠C3816	AE002878	CD39E0MQ3M	CC	0.0047UF 250V
⚠C3818	BZ110169	E5EZF2332M	CE	3300 UF 16V
⚠C3820	AD301348	E02LU5100M	CE	10 UF 50V
⚠C3822	BZ110028	E5EZT2102M	CE	1000 UF 16V
⚠C3823	BZ110032	E5EZF3102M	CE	1000 UF 25V
C3824	BZ110239	C03L0R7L2K	CC	330 PF 2KV R
⚠C3826	AE004799	E61SFC221M	CE	220 UF 200V
⚠C3827	BZ110101	E5EZF3222M	CE	2200 UF 25V
		DIODES		
D101	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D102	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D105	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D106	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D301	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D401	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
⚠D402	AD300731	D2WXN49370	DIODE,SILICON	1N4937
D403	BZ410037	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D404	BZ410037	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D405	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D406	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D408	BZ410037	D97U03301B	DIODE,ZENER	MTZJ33B T-77
⚠D409	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D410	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
⚠D411	AD300731	D2WXN49370	DIODE,SILICON	1N4937
⚠D413	AD300731	D2WXN49370	DIODE,SILICON	1N4937
D414	BZ410085	D2WXN40050	DIODE,SILICON	1N4005-EIC
⚠D416	BZ410020	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D603	BZ410085	D2WXN40050	DIODE,SILICON	1N4005-EIC
D604	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D605	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D606	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D607	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D609	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D801	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		DIODES		
D802	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D803	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D804	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D805	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D806	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D2201	BZ410087	0021E2Q140	LED	LTL-1CHEE-002A
D2205	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D2303	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D2304	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D3003	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3005	AE003870	D97U04R31B	DIODE,ZENER	MTZJ4.3B T-77
D3006	BZ410012	D28TQS04N0	DIODE,SCHOTTKY	11EQS04N-TA1B2
D3007	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D3008	BZ410012	D28TQS04N0	DIODE,SCHOTTKY	11EQS04N-TA1B2
D3801	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D3802	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3803	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3804	AD300671	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D3805	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3806	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3807	AD300731	D2WXN49370	DIODE,SILICON	1N4937
⚠D3808	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D3809	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
D3810	AD300671	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D3811	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3812	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D3815	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D3816	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D3817	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠D3818	AD300731	D2WXN49370	DIODE,SILICON	1N4937
⚠D3819	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠D3820	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠D3821	BZ410126	D2WXRU3AM0	DIODE,SILICON	RU3AM-EIC
D3822	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D3823	AE006082	D28F0PRA60	DIODE,RECTIFIER	30PRA60-FC
⚠D3824	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
D3825	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D3826	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3827	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3828	BZ410067	D97U02R21B	DIODE,ZENER	MTZJ2.2B T-77
⚠D3830	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
D3831	BZ410064	D97U03R91B	DIODE,ZENER	MTZJ3.9B T-77
D4001	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4002	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4003	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4004	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4005	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D8111	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D8112	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
		ICS		
IC101	AE006062	I55D06084A	IC	OEC6084A
IC103	AD301641	I9UF032310	IC	PST3231NR
IC199	AE006462	A5S101U255	INIT DATA	BR24L04F-WE2
IC302	AD301983	I01FF58910	IC	AN5891SA-E1V
⚠IC351	AD300056	I0FSP52760	IC	AN5276
⚠IC401	AE002783	I03TD804N0	IC	LA78040N-E
IC601	AE004116	I03FC319N0	IC	LA76319NM-MPB-E
IC902	BZ611068	I01FF58290	IC	AN5829S-E1V
IC905	BZ611104	I0QF02533V	IC	NJM2533V(TE2)
IC906	BZ611104	I0QF02533V	IC	NJM2533V(TE2)
IC1501	AE006220	I05FEA45FG	IC	TC90A45FG
IC2301	AE003581	I03F065650	IC	LA6565-TE-L-E
IC2304	AE005769	I07J003580	IC	BA10358FV-E2
⚠IC3001	BZ611015	I1KA97805A	IC	KIA7805API
⚠IC3002	BZ611015	I1KA97805A	IC	KIA7805API
⚠IC3005	BZ611033	I1KA97809A	IC	KIA7809API
⚠IC3800	AE002809	000220002W	PHOTO COUPLER	PS2561AL1-1-V(W)
IC4001	AE005760	ICQK068620	IC	ZR36862PQCG
IC4002	AE005421	I57J0L02F0	IC	BR24L02F-WE2
IC4003	AE006061	I07F9E00W0	IC	BA33E00WHFP-TR
IC4007	AE006453	S5S101UF01	MEMORY DATA	SST39VF800A-70-4C-EKE

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		ICS		
IC4008	AE006454	IFLJ0622H6	IC	K4S161622H-UC60
IC4009	AE006454	IFLJ0622H6	IC	K4S161622H-UC60
IC4201	AE001295	I0QJ045800	IC	NJM4580M(TE1)
IC4202	BZ611139	I0QF02534V	IC	NJM2534V(TE2)
IC4203	BZ611104	I0QF02533V	IC	NJM2533V(TE2)
IC8102	AE003584	I17F017530	IC	PCM1753DBQR
		TRANSISTORS		
Q104	BZ510108	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
Q105	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q301	BZ510108	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
⚠Q401	BZ510004	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
⚠Q405	BZ510097	TCAT03227Y	TRANSISTOR,SILICON	KTC3227_Y-AT
Q406	BZ510040	TDUU024990	TRANSISTOR,SILICON	2SD2499(LB0EC1)
Q601	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q602	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q605	BZ510090	TPAAB05001	COMPOUND TRANSISTOR	KRA102SRTK
⚠Q801	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
⚠Q802	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
⚠Q803	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
⚠Q804	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠Q805	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠Q806	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
Q902	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q1501	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q1502	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q1503	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q2201	BZ510067	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q2301	BZ510112	T67J1036K0	TRANSISTOR,SILICON	2SA1036KT146
Q2302	AE003592	T67J048TL0	TRANSISTOR,SILICON	2SA2048TL
Q2303	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q2304	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q2305	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
⚠Q3000	BZ510057	TAAT01281Y	TRANSISTOR,SILICON	KTA1281_Y
Q3001	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
⚠Q3002	BZ510057	TAAT01281Y	TRANSISTOR,SILICON	KTA1281_Y
⚠Q3003	AD301780	TCA0043690	TRANSISTOR,SILICON	KTC4369(O,Y)
⚠Q3005	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
⚠Q3006	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q3007	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
⚠Q3008	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
⚠Q3009	BZ510057	TAAT01281Y	TRANSISTOR,SILICON	KTA1281_Y
Q3010	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
Q3800	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q3801	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
⚠Q3802	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
⚠Q3803	BZ510098	T220033260	FET	2SK3326(2)
Q4004	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q4201	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q4203	BZ510088	TNAAD05001	COMPOUND TRANSISTOR	KRC104SRTK
Q4209	BZ510067	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q4210	BZ510107	TPAAA05001	COMPOUND TRANSISTOR	KRA101SRTK
Q4211	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q4212	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
		COILS &TRANSFORMERS		
L001	BZ310196	02167B101K	COIL	100 UH
L101	BZ310030	021LA6560K	COIL	56 UH
L301	BZ310196	02167B101K	COIL	100 UH
L401	BZ310004	021679472K	COIL	4.7 MH
⚠L402	BZ310013	0221000013	COIL,LINEARITY	ELH5L4112N
L601	BZ310041	02167F101J	COIL	100 UH
L602	BZ310113	021673221K	COIL	220 UH
L801	BZ310069	02167D151K	COIL	150 UH
L902	BZ310041	02167F101J	COIL	100 UH
L904	BZ310041	02167F101J	COIL	100 UH
L1501	AD300613	02167F150J	COIL	15 UH
L1502	AD300613	02167F150J	COIL	15 UH
L1503	BZ310138	021673821K	COIL	820 UH
L1504	BZ310139	02167F151J	COIL	150 UH
L1505	BZ310077	021LA61R0M	COIL	1 UH
L3000	AD301785	02167E100K	COIL	R6-1 10 UH
⚠L3800	BZ310066	028R200024	COIL,DEGAUSS	8R200024

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		COILS &TRANSFORMERS		
⚠L3801	AE003611	029X000116	COIL,LINE FILTER	SS28V-R20130
L3803	AD301539	02AHB0A0A4	CORE,FERRITE	W5T_20X10X10A
L4001	BZ310191	02167F2R2J	COIL	2.2 UH
L4002	BZ310118	02AHB9A972	CORE,FERRITE	W5T29X7.5X19
L4201	BZ310041	02167F101J	COIL	100 UH
L4202	BZ310041	02167F101J	COIL	100 UH
L4203	BZ310041	02167F101J	COIL	100 UH
L4205	BZ310041	02167F101J	COIL	100 UH
L8102	AE000828	02167F1R0K	COIL	1 UH
L8103	AE000828	02167F1R0K	COIL	1 UH
T401	BZ310172	045013003J	TRANS,HORIZONTAL DRIVE	ETH14Y47AY
⚠T3800	AD302030	0481390314	TRANSFORMER,SWITCHING	81390314
		JACKS		
⚠J801	AD301356	066F130020	SOCKET,CATHODE RAY,TUBE	ISHS53S
⚠J2201	AE003431	060J131016	HEADPHONE JACK	MSJ-2000_AG
J2202	AE002949	060J421036	RCA JACK	MTJ-032-05A-30-FE
J2203	AE002950	060J421037	RCA JACK	MTJ-032-05A-32-FE
J2204	AE002951	060J421030	RCA JACK	MTJ-032-05A-31-FE
J4201	AE003568	060J401102	RCA JACK	MSP-251V-05NI-FE-LF
J4203	AE002759	060J431020	RCA JACK	MSP-213V2-432_NI_LF
		SWITCHES		
SW2213	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2214	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2215	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2216	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2217	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2218	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2219	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2220	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2221	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2223	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
		VARIABLE RESISTORS		
VR402	BZ210218	V1K63H3BTE	VOLUME,SEMI FIXED	NVG6TLTAB222
VR3800	BZ210265	V1K63Q2BTE	VOLUME,SEMI FIXED	NVG6TLTAB471
		P.C.BOARD ASSEMBLIES		
PCB110	AE006455	A5S102U110	PCB ASS'Y	CCE012A
PCB130	AE006456	A5S102U130	PCB ASS'Y	DMD020A
PCB250	AE006463	A5S101U250	PCB ASS'Y	CME012A
		MISCELLANEOUS		
B2301	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2302	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2303	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2304	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2305	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B3001	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B3800	BZ310122	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B4001	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4002	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4003	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4005	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4006	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4007	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4008	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4009	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4010	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4011	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4012	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4013	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4014	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4016	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4017	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4018	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4201	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B8103	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
BL001	BZ310014	023C00022A	COIL,BALUN	HPN-01
BT001	AE005640	141R004016	BATTERY,MANGAN	GR03X-SP2
BT002	AE005640	141R004016	BATTERY,MANGAN	GR03X-SP2
CD301	AE006268	06C3123806	CORD,CONNECTOR	C3123806
CD302	AE006268	06C3123806	CORD,CONNECTOR	C3123806
CD801	AE005637	06CH823004	CORD,CONNECTOR	CH823004
CD802	AE001076	WDL6044038	FLAT CABLE AWM2468 A	WG26 6C BLACK 440MM

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		MISCELLANEOUS		
CD803	AE004016	WBL6036038	FLAT CABLE AWM2468 A	WG26 4C BLACK 360MM
CP101	BZ614458	069S290629	CONNECTOR PCB SIDE	A2001WV2-9P
CP301	AE005936	069W120459	CONNECTOR PCB SIDE	213213102W1
CP302	AE005936	069W120459	CONNECTOR PCB SIDE	213213102W1
⚠CP401	BZ614303	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P
CP801	BZ614269	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
⚠CD3800	AE005639	1209414909	CORD,AC BUSH	9414909
CD4002	AE006055	06C32B2202	CORD,CONNECTOR	C32B2202
CD8101	AE003576	122F0C1602	CORD,JUMPER	2F0C1602
CP2301	AE003571	069GYOT119	CONNECTOR PCB SIDE	09-5000-024-001-001
CP2302	AE005934	069EV53030	CONNECTOR PCB SIDE	00_6232_005_006_800+
CP2303	AE005935	069EV63030	CONNECTOR PCB SIDE	00_6232_006_006_800+
⚠CP3800	BZ614283	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP4201	BZ614242	069S260629	CONNECTOR PCB SIDE	A2001WV2-6P
CP8001	BZ614214	069S2B0629	CONNECTOR PCB SIDE	A2001WV2-11P
CP8002	AD301797	069J7C0029	CONNECTOR PCB SIDE	IMSA-9604S-12Z14
CP802A	BZ614333	067U006049	WIRE HOLDER	B2013H02-6P
CP802B	BZ614333	067U006049	WIRE HOLDER	B2013H02-6P
CP803A	BZ614334	067U004029	WIRE HOLDER	B2013H02-4P
CP803B	BZ614334	067U004029	WIRE HOLDER	B2013H02-4P
CP8101	AE006053	069J7C0589	CONNECTOR PCB SIDE	IMSA-9604S-12F
CUS133	BZ710149	800WFAA008	CUSHION C	
EL001	BZ614044	124120301A	EYE LET	XRY20X30BD
EL002	BZ614043	124116281A	EYE LET	XRY16X28BD
⚠F3800	BZ614504	081PC05005	FUSE	51MS050L
⚠FB401	AE006458	043220059F	TRANSFORMER,FLYBACK	FJN20A003_M
FH3800	AE002634	06710T0009	HOLDER,FUSE	EYF-52BCY
FH3801	AE002634	06710T0009	HOLDER,FUSE	EYF-52BCY
OS2202	BZ614199	077Q004017	REMOTE RECEIVER	PIC-37243SR
PH3800	BZ614016	069W01001A	CONNECTOR PCB SIDE	003P-2100
PH3801	BZ614016	069W01001A	CONNECTOR PCB SIDE	003P-2100
⚠RY3800	AD300114	0560V20115	RELAY	ALKS321
⚠SP351	AE006459	070N546012	SPEAKER	YDP4010-2
⚠SP352	AE006459	070N546012	SPEAKER	YDP4010-2
TM101	AE006056	076D0KG010	TRANSMITTER	ORT204N7404359-U
⚠TU001	AE006069	0163300018	RF UNIT	115-V-KA35ARB
⚠TH3800	AD302000	D8EE0B1400	DEGAUSS ELEMENT	B59203-S1060-B14
⚠V801	AE005627	0981210456	CRT W/DY	A51LYZ095X80
X101	BZ613019	1002T01606	CERAMIC OSCILLATOR	CSTLS16M0X53-A0
X601	AD301653	100DT3R531	CRYSTAL	HC-49/U
X4001	AD301803	100BT02701	CRYSTAL	HC-49U/S

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
⚠R401	AD302023	R3X28A181J	R,METAL	180 OHM 2W
⚠R402	BZ210262	R3X28A221J	R,METAL OXIDE	220 OHM 2W
⚠R408	BZ210285	R3X28AR47J	R,METAL OXIDE	0.47 OHM 2W
⚠R418	BZ210130	R002T21R5J	RC	1.5 OHM 1/2W
⚠R426	BZ210003	R3K181102J	R,METAL OXIDE	1K OHM 1W
⚠R444	BZ210244	R4X5T6562F	R,METAL	5.6K OHM 1/6W
⚠R445	AD301011	R4X5T6393F	R,METAL	39K OHM 1/6W
⚠R447	AE006221	R638U2680J	R,FUSE	68 OHM 1/2W
⚠R450	AE006460	R638812R2J	R,FUSE	2.2 OHM 1W
⚠R803	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠R805	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
⚠R807	BZ210050	R3X18A123J	R,METAL OXIDE	12K OHM 2W
R3025	BZ210204	R3X1814R7J	R,METAL OXIDE	4.7 OHM 1W
⚠R3800	BZ210230	R4X5T6332F	R,METAL	3.3K OHM 1/6W
⚠R3803	BZ210206	R002T2155J	RC	1.5M OHM 1/2W
⚠R3806	BZ210080	R0G3K2275K	RC	2.7M OHM 1/2W
⚠R3812	BZ210217	R3X181331J	R,METAL OXIDE	330 OHM 1W
⚠R3817	BZ210117	R5X2CE010J	R,CEMENT	1 OHM 7W
⚠R3821	BZ210063	R3X181R22J	R,METAL OXIDE	0.22 OHM 1W
⚠R3828	AE005735	R63881R22J	R,FUSE	0.22 OHM 1W
⚠R3829	AD301203	R002T4101J	RC	100 OHM 1/4W
		CAPACITORS		
⚠C357	AD300067	E02LF4102M	CE	1000 UF 35V
⚠C402	AD300064	E02LT8220M	CE	22 UF 100V
⚠C407	BZ210176	E02LF3222M	CE	2200 UF 25V
⚠C421	BZ110065	E5EZT4471M	CE	470 UF 35V
C423	BZ110136	P4J7F3394J	CMPP	0.39 UF 250V PMS
⚠C428	AD301978	P4N8FJ133H	CMPP	0.013 UF 1.25KV
⚠C431	BZ110204	E0ELFD220M	CE	22 UF 250V
C450	BZ110202	C0PLRR713K	CC	0.001 UF 2KV R
C802	BZ110226	C0JBB07H3K	CC	0.0022UF 2KV B
C1525	BZ110254	CQG0B0415K	CC	0.1 UF 50V B
⚠C3801	BZ110025	P2122B224M	CMP	0.22 UF 275V ECQUL
⚠C3810	AE001347	C0J0B05H3K	CC	0.0022UF 500V B
C3811	BZ110203	C0PLRR7W2K	CC	820 PF 2KV RR
⚠C3812	AE001347	C0J0B05H3K	CC	0.0022UF 500V B
⚠C3815	BZ110012	E51CGC471M	CE	470 UF 200V
⚠C3816	AE002878	CD39E0MQ3M	CC	0.0047UF 250V
⚠C3818	BZ110169	E5EZF2332M	CE	3300 UF 16V
⚠C3820	AD301348	E02LU5100M	CE	10 UF 50V
⚠C3822	BZ110028	E5EZT2102M	CE	1000 UF 16V
⚠C3823	BZ110032	E5EZF3102M	CE	1000 UF 25V
C3824	BZ110239	C03L0R7L2K	CC	330 PF 2KV R
⚠C3826	AE004799	E61SFC221M	CE	220 UF 200V
⚠C3827	BZ110101	E5EZF3222M	CE	2200 UF 25V
		DIODES		
D101	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D102	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D105	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D106	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D301	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D401	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
⚠D402	AD300731	D2WXN49370	DIODE,SILICON	1N4937
D403	BZ410037	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D404	BZ410037	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D405	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D406	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D408	BZ410037	D97U03301B	DIODE,ZENER	MTZJ33B T-77
⚠D409	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D410	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
⚠D411	AD300731	D2WXN49370	DIODE,SILICON	1N4937
⚠D413	AD300731	D2WXN49370	DIODE,SILICON	1N4937
D414	BZ410085	D2WXN40050	DIODE,SILICON	1N4005-EIC
⚠D416	BZ410020	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D603	BZ410085	D2WXN40050	DIODE,SILICON	1N4005-EIC
D604	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D605	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D606	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D607	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D609	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D801	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		DIODES		
D802	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D803	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D804	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D805	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D806	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D2201	BZ410087	0021E2Q140	LED	LTL-1CHEE-002A
D2205	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D2303	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D2304	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D3003	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3005	AE003870	D97U04R31B	DIODE,ZENER	MTZJ4.3B T-77
D3006	BZ410012	D28TQS04N0	DIODE,SCHOTTKY	11EQS04N-TA1B2
D3007	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D3008	BZ410012	D28TQS04N0	DIODE,SCHOTTKY	11EQS04N-TA1B2
D3801	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D3802	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3803	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3804	AD300671	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D3805	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3806	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3807	AD300731	D2WXN49370	DIODE,SILICON	1N4937
⚠D3808	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D3809	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
D3810	AD300671	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D3811	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3812	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D3815	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D3816	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D3817	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠D3818	AD300731	D2WXN49370	DIODE,SILICON	1N4937
⚠D3819	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠D3820	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠D3821	BZ410126	D2WXRU3AM0	DIODE,SILICON	RU3AM-EIC
D3822	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D3823	AE006082	D28F0PRA60	DIODE,RECTIFIER	30PRA60-FC
⚠D3824	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
D3825	AD300070	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D3826	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3827	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D3828	BZ410067	D97U02R21B	DIODE,ZENER	MTZJ2.2B T-77
⚠D3830	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
D3831	BZ410064	D97U03R91B	DIODE,ZENER	MTZJ3.9B T-77
D4001	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4002	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4003	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4004	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D4005	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D8111	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
D8112	BZ410086	DD7R0S3550	DIODE,SILICON	1SS355 TE-17
		ICS		
IC101	AE006062	I55D06084A	IC	OEC6084A
IC103	AD301641	I9UF032310	IC	PST3231NR
IC199	AE006477	A5S103U255	INIT DATA	BR24L04F-WE2
IC302	AD301983	I01FF58910	IC	AN5891SA-E1V
⚠IC351	AD300056	I0FSP52760	IC	AN5276
⚠IC401	AE002783	I03TD804N0	IC	LA78040N-E
IC601	AE004116	I03FC319N0	IC	LA76319NM-MPB-E
IC902	BZ611068	I01FF58290	IC	AN5829S-E1V
IC905	BZ611104	I0QF02533V	IC	NJM2533V(TE2)
IC906	BZ611104	I0QF02533V	IC	NJM2533V(TE2)
IC1501	AE006220	I05FEA45FG	IC	TC90A45FG
IC2301	AE003581	I03F065650	IC	LA6565-TE-L-E
IC2304	AE005769	I07J003580	IC	BA10358FV-E2
⚠IC3001	BZ611015	I1KA97805A	IC	KIA7805API
⚠IC3002	BZ611015	I1KA97805A	IC	KIA7805API
⚠IC3005	BZ611033	I1KA97809A	IC	KIA7809API
⚠IC3800	AE002809	000220002W	PHOTO COUPLER	PS2561AL1-1-V(W)
IC4001	AE005760	ICQK068620	IC	ZR36862PQCG
IC4002	AE005421	I57J0L02F0	IC	BR24L02F-WE2
IC4003	AE006061	I07F9E00W0	IC	BA33E00WHFP-TR
IC4007	AE006453	S5S101UF01	MEMORY DATA	SST39VF800A-70-4C-EKE

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		ICS		
IC4008	AE006454	IFLJ0622H6	IC	K4S161622H-UC60
IC4009	AE006454	IFLJ0622H6	IC	K4S161622H-UC60
IC4201	AE001295	I0QJ045800	IC	NJM4580M(TE1)
IC4202	BZ611139	I0QF02534V	IC	NJM2534V(TE2)
IC4203	BZ611104	I0QF02533V	IC	NJM2533V(TE2)
IC8102	AE003584	I17F017530	IC	PCM1753DBQR
		TRANSISTORS		
Q104	BZ510108	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
Q105	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q301	BZ510108	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
⚠Q401	BZ510004	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
⚠Q405	BZ510097	TCAT03227Y	TRANSISTOR,SILICON	KTC3227_Y-AT
Q406	BZ510040	TDUU024990	TRANSISTOR,SILICON	2SD2499(LB0EC1)
Q601	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q602	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q605	BZ510090	TPAAB05001	COMPOUND TRANSISTOR	KRA102SRTK
⚠Q801	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
⚠Q802	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
⚠Q803	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
⚠Q804	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠Q805	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠Q806	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
Q902	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q1501	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q1502	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q1503	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q2201	BZ510067	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q2301	BZ510112	T67J1036K0	TRANSISTOR,SILICON	2SA1036KT146
Q2302	AE003592	T67J048TL0	TRANSISTOR,SILICON	2SA2048TL
Q2303	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q2304	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q2305	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
⚠Q3000	BZ510057	TAAT01281Y	TRANSISTOR,SILICON	KTA1281_Y
Q3001	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
⚠Q3002	BZ510057	TAAT01281Y	TRANSISTOR,SILICON	KTA1281_Y
⚠Q3003	AD301780	TCA0043690	TRANSISTOR,SILICON	KTC4369(O,Y)
⚠Q3005	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
⚠Q3006	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q3007	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
⚠Q3008	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
⚠Q3009	BZ510057	TAAT01281Y	TRANSISTOR,SILICON	KTA1281_Y
Q3010	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
Q3800	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q3801	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
⚠Q3802	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
⚠Q3803	BZ510098	T220033260	FET	2SK3326(2)
Q4004	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q4201	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q4203	BZ510088	TNAAD05001	COMPOUND TRANSISTOR	KRC104SRTK
Q4209	BZ510067	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q4210	BZ510107	TPAAA05001	COMPOUND TRANSISTOR	KRA101SRTK
Q4211	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q4212	BZ510109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
		COILS &TRANSFORMERS		
L001	BZ310196	02167B101K	COIL	100 UH
L101	BZ310030	021LA6560K	COIL	56 UH
L301	BZ310196	02167B101K	COIL	100 UH
L401	BZ310004	021679472K	COIL	4.7 MH
⚠L402	BZ310013	0221000013	COIL,LINEARITY	ELH5L4112N
L601	BZ310041	02167F101J	COIL	100 UH
L602	BZ310113	021673221K	COIL	220 UH
L801	BZ310069	02167D151K	COIL	150 UH
L902	BZ310041	02167F101J	COIL	100 UH
L904	BZ310041	02167F101J	COIL	100 UH
L1501	AD300613	02167F150J	COIL	15 UH
L1502	AD300613	02167F150J	COIL	15 UH
L1503	BZ310138	021673821K	COIL	820 UH
L1504	BZ310139	02167F151J	COIL	150 UH
L1505	BZ310077	021LA61R0M	COIL	1 UH
L3000	AD301785	02167E100K	COIL	R6-1 10 UH
⚠L3800	BZ310066	028R200024	COIL,DEGAUSS	8R200024

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		COILS &TRANSFORMERS		
⚠L3801	AE003611	029X000116	COIL,LINE FILTER	SS28V-R20130
L3803	AD301539	02AHB0A0A4	CORE,FERRITE	W5T_20X10X10A
L4001	BZ310191	02167F2R2J	COIL	2.2 UH
L4002	BZ310118	02AHB9A972	CORE,FERRITE	W5T29X7.5X19
L4201	BZ310041	02167F101J	COIL	100 UH
L4202	BZ310041	02167F101J	COIL	100 UH
L4203	BZ310041	02167F101J	COIL	100 UH
L4205	BZ310041	02167F101J	COIL	100 UH
L8102	AE000828	02167F1R0K	COIL	1 UH
L8103	AE000828	02167F1R0K	COIL	1 UH
T401	BZ310172	045013003J	TRANS,HORIZONTAL DRIVE	ETH14Y47AY
⚠T3800	AD302030	0481390314	TRANSFORMER,SWITCHING	81390314
		JACKS		
⚠J801	AD301356	066F130020	SOCKET,CATHODE RAY,TUBE	ISHS53S
⚠J2201	AE003431	060J131016	HEADPHONE JACK	MSJ-2000_AG
J2202	AE002949	060J421036	RCA JACK	MTJ-032-05A-30-FE
J2203	AE002950	060J421037	RCA JACK	MTJ-032-05A-32-FE
J2204	AE002951	060J421030	RCA JACK	MTJ-032-05A-31-FE
J4201	AE003568	060J401102	RCA JACK	MSP-251V-05NI-FE-LF
J4203	AE002759	060J431020	RCA JACK	MSP-213V2-432_NI_LF
		SWITCHES		
SW2213	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2214	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2215	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2216	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2217	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2218	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2219	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2220	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2221	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW2223	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
		VARIABLE RESISTORS		
VR402	BZ210218	V1K63H3BTE	VOLUME,SEMI FIXED	NVG6TLTAB222
VR3800	BZ210265	V1K63Q2BTE	VOLUME,SEMI FIXED	NVG6TLTAB471
		P.C.BOARD ASSEMBLIES		
PCB110	AE006455	A5S102U110	PCB ASS'Y	CCE012A
PCB130	AE006456	A5S102U130	PCB ASS'Y	DMD020A
PCB250	AE006478	A5S103U250	PCB ASS'Y	CME012A
		MISCELLANEOUS		
B2301	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2302	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2303	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2304	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B2305	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B3001	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B3800	BZ310122	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B4001	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4002	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4003	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4005	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4006	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4007	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4008	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4009	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4010	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4011	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4012	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4013	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4014	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4016	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4017	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4018	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
B4201	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B8103	AE005476	0246C51024	CORE,BEADS	MMZ1608R102CT
BL001	BZ310014	023C00022A	COIL,BALUN	HPN-01
BT001	AE005640	141R004016	BATTERY,MANGAN	GR03X-SP2
BT002	AE005640	141R004016	BATTERY,MANGAN	GR03X-SP2
CD301	AE006268	06C3123806	CORD,CONNECTOR	C3123806
CD302	AE006268	06C3123806	CORD,CONNECTOR	C3123806
CD801	AE005637	06CH823004	CORD,CONNECTOR	CH823004
CD802	AE001076	WDL6044038	FLAT CABLE AWM2468 A	WG26 6C BLACK 440MM

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		MISCELLANEOUS		
CD803	AE004016	WBL6036038	FLAT CABLE AWM2468 A	WG26 4C BLACK 360MM
CP101	BZ614458	069S290629	CONNECTOR PCB SIDE	A2001WV2-9P
CP301	AE005936	069W120459	CONNECTOR PCB SIDE	213213102W1
CP302	AE005936	069W120459	CONNECTOR PCB SIDE	213213102W1
⚠CP401	BZ614303	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P
CP801	BZ614269	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
⚠CD3800	AE005639	1209414909	CORD,AC BUSH	9414909
CD4002	AE006055	06C32B2202	CORD,CONNECTOR	C32B2202
CD8101	AE003576	122F0C1602	CORD,JUMPER	2F0C1602
CP2301	AE003571	069GYOT119	CONNECTOR PCB SIDE	09-5000-024-001-001
CP2302	AE005934	069EV53030	CONNECTOR PCB SIDE	00_6232_005_006_800+
CP2303	AE005935	069EV63030	CONNECTOR PCB SIDE	00_6232_006_006_800+
⚠CP3800	BZ614283	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP4201	BZ614242	069S260629	CONNECTOR PCB SIDE	A2001WV2-6P
CP8001	BZ614214	069S2B0629	CONNECTOR PCB SIDE	A2001WV2-11P
CP8002	AD301797	069J7C0029	CONNECTOR PCB SIDE	IMSA-9604S-12Z14
CP802A	BZ614333	067U006049	WIRE HOLDER	B2013H02-6P
CP802B	BZ614333	067U006049	WIRE HOLDER	B2013H02-6P
CP803A	BZ614334	067U004029	WIRE HOLDER	B2013H02-4P
CP803B	BZ614334	067U004029	WIRE HOLDER	B2013H02-4P
CP8101	AE006053	069J7C0589	CONNECTOR PCB SIDE	IMSA-9604S-12F
CUS133	BZ710149	800WFAA008	CUSHION C	
EL001	BZ614044	124120301A	EYE LET	XRY20X30BD
EL002	BZ614043	124116281A	EYE LET	XRY16X28BD
⚠F3800	BZ614504	081PC05005	FUSE	51MS050L
⚠FB401	AE006458	043220059F	TRANSFORMER,FLYBACK	FJN20A003_M
FH3800	AE002634	06710T0009	HOLDER,FUSE	EYF-52BCY
FH3801	AE002634	06710T0009	HOLDER,FUSE	EYF-52BCY
OS2202	BZ614199	077Q004017	REMOTE RECEIVER	PIC-37243SR
PH3800	BZ614016	069W01001A	CONNECTOR PCB SIDE	003P-2100
PH3801	BZ614016	069W01001A	CONNECTOR PCB SIDE	003P-2100
⚠RY3800	AD300114	0560V20115	RELAY	ALKS321
⚠SP351	AE006459	070N546012	SPEAKER	YDP4010-2
⚠SP352	AE006459	070N546012	SPEAKER	YDP4010-2
TM101	AE006056	076D0KG010	TRANSMITTER	ORT204N7404359-U
⚠TU001	AE006069	0163300018	RF UNIT	115-V-KA35ARB
⚠TH3800	AD302000	D8EE0B1400	DEGAUSS ELEMENT	B59203-S1060-B14
⚠V801	AE005627	0981210456	CRT W/DY	A51LYZ095X80
X101	BZ613019	1002T01606	CERAMIC OSCILLATOR	CSTLS16M0X53-A0
X601	AD301653	100DT3R531	CRYSTAL	HC-49/U
X4001	AD301803	100BT02701	CRYSTAL	HC-49U/S

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

TOSHIBA CORPORATION
1-1, SHIBAURA 1-CHOME, MINATO-KU, TOKYO 105-8001, JAPAN